



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 103062

TO: Molly Ceperley
Location: CM1/8D15&7E12
Art Unit: 1641
September 9, 2003

Case Serial Number: 09/099048

From: P. Sheppard
Location: CM1-1E03
Phone: (703) 308-4499

sheppard@uspto.gov

Search Notes

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SEARCH REQUEST FORM

Scientific and Technical Information Center

REF Access DB# 103062
SEP 14 2003
NORTH DIVISION
(STIC)

Requester's Full Name: MOLLY CEPERLEY Examiner #: 59757 Date: 09/04/03
Art Unit: 164 Phone Number 308-4239 Serial Number: Re-issue 091099.048
Mail Box and Bldg/Room Location: 8D15 Results Format Preferred (circle) PAPER DISK E-MAIL
→ 7E12

If more than one search is submitted, please prioritize searches in order of need. MEJ

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Rate Measurements of Biomolecular Reactions Using Electrochemiluminescence

Inventors (please provide full names): Laurette Nacamulli, Jonathan K. Keland,
Stephanie A. Hayes (Igen, Inc.)

Earliest Priority Filing Date: 12/02/94

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for:

An electrochemiluminescent (ECL) method for determining the time course of a reaction (see the attached claims).

Essential terms:

- ① Electrochemiluminescence (also luminophore)
- ② Time course of reaction (or reaction rate, rate of reaction, time interval, pre-selected ^{potential} voltage pulses, modulated signal, demodulated signal, enzymatic reaction, time course, voltage pulses, rate measurement)

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Searcher: <u>Skerrard</u>	Type of Search	Vendors and cost where applicable
Searcher Phone #: <u>308-4499</u>	NA Sequence (#)	STN
Searcher Location:	AA Sequence (#)	Dialog
Date Searcher Picked Up:	Structure (#)	Questel/Orbit
Date Completed: <u>9/9/03</u>	Bibliographic	Dr. Link
Searcher Prep & Review Time:	Litigation	Lexis/Nexis
Clerical Prep Time:	Fulltext	Sequence Systems
Online Time:	Patent Family	WWW/Internet
	Other	Other (specify)

PTO-1590 (8-01)

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*Considered.
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FILE COVERS 1907 - 8 Sep 2003 VOL 139 ISS 11

FILE LAST UPDATED: 7 Sep 2003 (20030907/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L1	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	ELECTROCHEM/BI
L2	13	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHOR/BI
L3	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHORE/BI
L7	13142	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINESC?
L8	275185	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L1 OR ?ELECTROCHEM?
L9	230077	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L7 OR ?LUMINESC?
L10	4251	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L8(L)L9
L11		SEL	PLU=ON	L3 1-	CHEM :	2 TERMS
L12	1	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L11
L13	3990	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L12 OR L2 OR ?LUMINOPHOR?
L14	48	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L10 AND L13
L15	31	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L14 AND (REACTION OR COURSE OR BINDING)

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L15 ANSWER 1 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: ~~2002~~-691907 HCAPLUS

DOCUMENT NUMBER: 138:286894

TITLE: Electrochemical light, from laboratory curiosity to useful analytical technique

AUTHOR(S): Richter, Mark M.

CORPORATE SOURCE: Dept. of Chemistry, Southwest Missouri State Univ., Springfield, MO, 65804, USA

SOURCE: Chemical Educator [online computer file] (2002), 7(4), 195-199

CODEN: CHEDF5; ISSN: 1430-4171

URL: <http://link.springer-ny.com/link/service/journals/00897/papers/0007004/740195mr.pdf>

PUBLISHER: Springer-Verlag New York Inc.

DOCUMENT TYPE: Journal; (online computer file)

LANGUAGE: English

AB **Electrochemiluminescence** (ECL) is the process by which species generated at electrodes undergo electron-transfer **reactions** to form excited states that emit light. The application of a voltage to an electrode in the presence of an ECL **luminophore**, such as Ru(bpy)₃²⁺ (where bpy = 2,2'-bipyridine) or diphenylanthracene, results in light emission and allows detection of the emitter at very low concns. (ltoreq. 10⁻¹² mol dm⁻³). By employing ECL-active species as labels on biol. mols., ECL has found com. application for immunoassays and DNA analyses. The history of ECL is presented including the earliest, curiosity driven expts. and the development of ECL into an anal. technique for clin. diagnostic applications. The development and use of ECL sensors is an excellent example of how, over time, a lab. curiosity can become a useful, powerful, and com. viable technique.

REFERENCE COUNT: 80 THERE ARE 80 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER (2) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:571839 HCAPLUS

DOCUMENT NUMBER: 138:234169

TITLE: **Electrochemiluminescence**

AUTHOR(S): Richter, Mark M.

CORPORATE SOURCE: Department of Chemistry, Southwest Missouri State University, Springfield, MO, 65804-0089, USA

SOURCE: Optical Biosensors (2002), 173-205. Editor(s): Ligler, Frances S.; Rowe Taitt, Chris A. Elsevier Science B.V.: Amsterdam, Neth.
CODEN: 69CXMQ; ISBN: 0-444-50974-7

DOCUMENT TYPE: Conference; General Review

LANGUAGE: English

AB A review. **Electrochemiluminescence** (ECL) is the process where species generated at electrodes undergo electron transfer **reactions** to form excited states that emit light. Application of a voltage to an electrode in the presence of an ECL **luminophore** such as Ru(bpy)₃²⁺ (where bpy = 2,2'-bipyridine) results in light emission and allows detection of the emitter at very low concns. (<10⁻¹¹ M). By employing ECL-active species as labels on biol. mols., ECL has found application in com. instruments for immunoassays and DNA analyses. Com. systems have been developed that use ECL to detect many clin. relevant analytes with high sensitivity and selectivity. The principles, history, applications, advantages, limitations and possibilities for improving the performance of this technol. are outlined in this chapter.

REFERENCE COUNT: 164 THERE ARE 164 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER (3) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:98150 HCAPLUS

DOCUMENT NUMBER: 136:291175

TITLE: Time-resolved **electrochemiluminescence** of platinum(II) coproporphyrin

AUTHOR(S): Canty, P.; Vare, L.; Hakansson, M.; Spehar, A.-M.; Papkovsky, D.; Ala-Kleme, T.; Kankare, J.; Kulmala, S.

CORPORATE SOURCE: Laboratory of Inorganic and Analytical Chemistry, Helsinki University of Technology, FIN-02015, Finland

SOURCE: Analytica Chimica Acta (2002), 453(2), 269-279

CODEN: ACACAM; ISSN: 0003-2670

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cathodic pulse polarization of oxide-covered aluminum electrodes can generate **electrochemiluminescence** (ECL) from metalloporphyrins.

This is based on the tunnel emission of hot electrons into aq. electrolyte soln., which probably results in the generation of hydrated electrons as reducing mediators. These tunnel emitted electrons allow the prodn. of highly reactive radicals, such as sulfate radicals from peroxodisulfate ions, which can induce strong redox **luminescence** from various org. **chemiluminophores** including metalloporphyrins. The work presented here illustrates the generation of ECL from platinum(II) coproporphyrin (PtCP) and its bovine serum albumin (BSA) conjugate. This allows the detection of these mols. below nanomolar concns. and over several orders of magnitude of concn. The relatively long **luminescence** lifetime of PtCP allows discrimination from the background ECL signal using time resolved measurements, leading to higher sensitivity and the detection of PtCP-BSA indicates the potential use of metalloporphyrins as labels in ECL-based bioassays such as immunoassays and DNA-binding assays.

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2000:875851 HCAPLUS
 DOCUMENT NUMBER: 134:187439
 TITLE: Dendritic Supramolecular Assembly with Multiple Ru(II) Tris(bipyridine) Units at the Periphery: Synthesis, Spectroscopic, and Electrochemical Study
 AUTHOR(S): Zhou, Ming; Roovers, Jacques
 CORPORATE SOURCE: Institute for Chemical Process and Environmental Technology, National Research Council of Canada, Ottawa, ON, K1A 0R6, Can.
 SOURCE: Macromolecules (2001), 34(2), 244-252
 CODEN: MAMOBX; ISSN: 0024-9297
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A supramol. assembly with eight peripheral Ru(II) tris(bipyridine), [Ru(bpy)3]2+, units covalently linked to a carbosilane dendrimer platform was synthesized. 1H NMR and MALDI-TOF mass spectrometry confirm the target structure. Spectroscopic and **electrochem.** studies disclose that the identical [Ru(bpy)3]2+ units in this system interact neither in the ground state nor in the excited state. In MeCN solns. of identical molar concn. of [Ru(bpy)3]2+ units, both the dendrimer and ref. monomeric [Ru(bpy)2(4-octoxy-2,2'-bipyridine)]2+ exhibit identical absorption and emission spectra. Cyclic voltammetry reveals that the dendrimer and monomer possess the same redox potentials of the metal-centered oxidn. process [Ru(bpy)3]2+/3+ and the 1st ligand-centered redn. process [Ru(bpy)3]1+/2+. The abnormal redox peaks of the [Ru(bpy)3]0/1+ and [Ru(bpy)3]1-/0 transitions of the dendrimer are attributed to the accumulation of neutral dendrimer on the electrode. A preliminary study of the **electrochemiluminescence** (ECL) in tripropylamine-MeCN soln. indicates that the ECL intensity of the dendrimer with eight [Ru(bpy)3]2+ units is 5 times higher than that of the ref. monomeric species. Therefore, the molar emission, generated either by photoexcitation or by **electrochem.** excitation, can be amplified by incorporating multiple **luminophors** into a multibranch platform without significantly changing the redox and photophys. properties. The possible use of supramol. assemblies as labels for biodiagnostics is discussed.

REFERENCE COUNT: 77 THERE ARE 77 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2000:538699 HCAPLUS
 DOCUMENT NUMBER: 133:278254
 TITLE: Development of highly sensitive Ru-chelate based ECL

immunoassay 2: Electrochemical and immunochemical studies on homogeneous and heterogeneous ECL excitation

AUTHOR(S): Namba, Yuzaburo; Sawada, Takashi; Suzuki, Osamu
 CORPORATE SOURCE: Clinical Diagnostics Department, Eisai Co., Ltd., Tokyo, 112-8088, Japan
 SOURCE: Analytical Sciences (2000), 16(7), 757-763
 CODEN: ANSCEN; ISSN: 0910-6340
 PUBLISHER: Japan Society for Analytical Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Studies on the electrochem. and immunochem. reaction kinetics of the heterogeneous type of ECL excitations were made comparatively with homogeneous types of ECL excitations by measuring human IgG (hIgG) using an antibody labeled with a ruthenium(II) tris(bipyridyl) (Ru-chelate) as the **luminophore** (Ru-Ab). Solid-phase sandwich-type immunoassays were carried out on the surface of magnetic micro-beads (MB) with a diam. of 4.5 μm . In the ECL measurement, two types of ECL excitation methods were compared. One was a homogeneous ECL excitation, where the reacted MB together with non-reacted Ru-Ab were excited in a suspending phase without any bind/free (B/F) sepn. procedure. The other was a heterogeneous one where the reacted MB were excited over the electrode after being collected by a magnet following the B/F sepn. to remove the non-reacted Ru-Ab. In electrochem. studies, it was revealed that the Ru-Ab reacted with hIgG decreased the ECL emission efficiency. The decreasing ratio was inversely correlated with the cubic root of the **luminophore** mol. wt. In homogenous ECL excitation for the reacted matrix contg. both the reacted MB and the non-reacted Ab, however, a reverse correlating dose response curve appeared only in the area beyond the antigen-antibody equiv. point, the so-called antigen excess zone; as a result the S/N ratio of the ECL signal was as small as only 1.3. In contrast, the heterogeneous ECL excitation for the reacted MB, with the non-reacted Ru-Ab removed by B/F sepn., demonstrated 1000 or more times the S/N ratio in the area before the antigen-antibody equiv. point. Thus, this heterogeneous ECL excitation with B/F sepn. improved the detection sensitivity dramatically up to 1000 or more times higher than that of the homogeneous ECL excitation. Consequently, the sensitivity of heterogeneous ECLIA could be competitive with that of the conventional **chemiluminescence** immunoassay.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2000:382131 HCAPLUS
 DOCUMENT NUMBER: 133:89174
 TITLE: Optical-electronic characteristics of electrolytic radical-recombinative luminescence
 AUTHOR(S): Rozhitskii, N. N.
 CORPORATE SOURCE: Khar'kovskii Gos. Tekh. Univ. Radioelektroniki, Kharkov, 310166, Ukraine
 SOURCE: Visnik Kharkivs'kogo Derzhavnogo Universitetu (1999), 440, 161-168
 CODEN: VKDUF9
 PUBLISHER: Kharkivs'kii Derzhavnii Universitet
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB The main optical-electronic characteristics of luminescence emitting in radical recombinative processes in electrolyzed solns. of org. compds. - spectra, luminescence intensity dependencies upon electrode potential, **luminophor** concn., temp., effect of ultrasonic irradiation - are discussed.

L15 ANSWER 7 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:140513 HCAPLUS
DOCUMENT NUMBER: 132:307999
TITLE: Phenol substituent effects on electrogenerated chemiluminescence quenching
AUTHOR(S): McCall, Jeff; Richter, Mark M.
CORPORATE SOURCE: Dep. Chem., Southwest Missouri State University, Springfield, MO, 65804, USA
SOURCE: Analyst (Cambridge, United Kingdom) (2000), 125(3), 545-548
CODEN: ANALAO; ISSN: 0003-2654
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Efficient quenching of Ru(bpy)₃²⁺ (bpy = 2,2'-bipyridine) electrogenerated **chemiluminescence** (ECL) was obsd. in the presence of phenol and substituted phenols (e.g., 4-fluorophenol). Spectroscopic and **electrochem.** studies indicated that the mechanism of quenching involves energy transfer from the excited state **luminophore** to a benzoquinone deriv. formed at the electrode. The efficiency of ECL quenching is directly related to the position of the substituent on the arom. ring, with meta derivs. displaying the greatest magnitude of quenching. The degree of quenching does not appear to be related to the electron-donating or -withdrawing ability of the phenol substituent.
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:699542 HCAPLUS
DOCUMENT NUMBER: 132:36150
TITLE: Synthesis and characterization of partially crosslinked poly(N-vinylcarbazole-vinyl alcohol) copolymers with polypyridyl Ru(II) **luminophores**. Potential materials for electroluminescence
AUTHOR(S): Farah, Abdiaziz A.; Pietro, William J.
CORPORATE SOURCE: Dep. Chemistry, York Univ., Toronto, ON, M3J 1P3, Can.
SOURCE: Polymer Bulletin (Berlin) (1999), 43(2-3), 135-142
CODEN: POBUDR; ISSN: 0170-0839
PUBLISHER: Springer-Verlag
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A novel difunctionalized 5,5'-dibromomethylene-2,2'-bipyridine ligand was prepd. and covalently bound with concurrent crosslinking by a post-polymer modification method to N-vinylcarbazole-vinyl alc. copolymer. The **electrochem.** and UV-vis spectroscopy results both confirm the covalent attachment of ruthenium transition metal complex to the polymer backbone. Differential scanning calorimetry (DSC) and thermogravimetric anal. (TGA) indicate high thermal stability of the copolymer. The copolymer is also highly phosphorescent making it a potential polymeric material for transition metal-based **electroluminescent** devices.
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1998:515541 HCAPLUS
DOCUMENT NUMBER: 129:179853
TITLE: Dissolved oxygen determination by electrocatalyzed chemiluminescence with in-line solid phase media
AUTHOR(S): Atwater, James E.; DeHart, Jaffrey; Wheeler, Richard R., Jr.
CORPORATE SOURCE: UMPQUA Research Company, Myrtle Creek, OR, 97457, USA
SOURCE: Journal of Bioluminescence and Chemiluminescence (1998), 13(3), 125-130

CODEN: JBCHE7; ISSN: 0884-3996
 PUBLISHER: John Wiley & Sons Ltd.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Dissolved elemental O is detd. in a flowing aq. stream using glucose oxidase to catalyze the **reaction** between D-glucose and O to produce H₂O₂. The levels of the resulting H₂O₂ are detected and quantified by luminol **chemiluminescence** using in-line solid phase media for pH adjustment of the reagent stream and for controlled release of the **luminophore**. The **reaction** is initiated by **electrochem.** catalysis. Using excess D-glucose in the reagent flow stream, the intensity of **chemiluminescence** is rendered proportional only to fluctuations in the dissolved O concn. The detection range of aq. O is 0-10 mg/L.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:508864 HCAPLUS
 DOCUMENT NUMBER: 129:146650
 TITLE: Electrogenated chemiluminescence labels for analysis and/or referencing
 INVENTOR(S): Bard, Allen J.; Richards, Thomas; Leland, Jonathan K.
 PATENT ASSIGNEE(S): USA
 SOURCE: U.S., 31 pp., Cont.-in-part of U.S. Ser. No. 296,630, abandoned.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 3
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5786141	A	19980728	US 1995-385864	19950209
CA 2198489	AA	19960307	CA 1995-2198489	19950825
CA 2186503	AA	19960815	CA 1996-2186503	19960209
WO 9624690	A1	19960815	WO 1996-US1113	19960209
W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9647708	A1	19960827	AU 1996-47708	19960209
AU 709592	B2	19990902		
EP 755458	A1	19970129	EP 1996-903716	19960209
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 10502702	T2	19980310	JP 1996-524293	19960209
US 6479233	B1	20021112	US 1998-82273	19980520
AU 9936767	A1	19990902	AU 1999-36767	19990625
PRIORITY APPLN. INFO.:				
			US 1994-296630	B2 19940826
			US 1995-385684	A1 19950209
			US 1995-385864	A 19950209
			AU 1995-34103	A3 19950825
			WO 1996-US1113	W 19960209

AB Biomol. anal. using anodic oxidn. of aq. sodium 9,10-diphenylanthracene-2-sulfonate (DPAS) and 1- and 2-thianthrene-carboxylic acid (1-THCOOH and 2-THCOOH) in the presence of tri-n-propylamine (TPrA) as a coreactant in aq. soln. produces electrogenerated chemiluminescence (ECL). In addn., the cathodic redn. of DPAS in the presence of peroxydisulfate (S2O82-) as a coreactant also produces ECL in an acetonitrile (MeCN)-water soln. (1:1

by vol.). The oxidn. of chlorpromazine (CPZ) produces an ECL emission in the absence of an added coreactant following an unprecedented "self-annihilation" mechanism. DPAS was prepd. and the DPAS/TPrA and DPAS/S2082- ECL spectrum and emission vs. potential scans were studied. The emission spectra of DPAS at 430 nm was well sepd. from that of known **luminophore** tris (2,2'-bipyridine)ruthenium(II) (Ru(bpy)3²⁺) at 620 nm.

REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 11 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:455643 HCAPLUS

DOCUMENT NUMBER: 129:208495

TITLE: Hot electron injection into aqueous electrolyte

solution from thin insulating film-coated electrodes

AUTHOR(S): Kulmala, S.; Ala-Kleme, T.; Joela, H.; Kulmala, A.

CORPORATE SOURCE: Department Chemistry, University Turku, Turku, SF-20014, Finland

SOURCE: Journal of Radioanalytical and Nuclear Chemistry (1998), 232(1-2), 91-95

CODEN: JRNCMD; ISSN: 0236-5731

PUBLISHER: Elsevier Science S.A.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Hot electron injection into aq. electrolyte soln. was studied with **electrochemiluminescence** and ESR methods. Both methods provide further indirect support for the previously proposed hot electron emission mechanisms from thin insulating film-coated electrodes to aq. electrolyte solns. The results do not rule out the possibility of hydrated electron being as a cathodic intermediate in the redn. **reactions** at cathodically pulse-polarized thin insulating film-coated electrodes. However, no direct evidence for **electrochem.** generation of hydrated electrons could be obtained with ESR, only spin-trapping expts. could give information about the primary cathodic steps.

L15 ANSWER 12 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1998:26670 HCAPLUS

DOCUMENT NUMBER: 128:136572

TITLE: New immunoelectrochemiluminometric assay to measure serum thyrotropin

AUTHOR(S): Sotorrio, Pilar; Quiros, Aurelia; Izquierdo, Jose Maria

CORPORATE SOURCE: Depto. de Bioquim. Clin., Hops. General de Asturias, Oviedo, 33005, Spain

SOURCE: Clinical Chemistry (Washington, D. C.) (1997), 43(12), 2428-2430

CODEN: CLCHAU; ISSN: 0009-9147

PUBLISHER: American Association for Clinical Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new **immunoelectrochemiluminometric** assay (IECMA) for the detn. of serum TSH was evaluated using the random access analyzer Elecsys 2010. The method consists of 2 immunol. "sandwich" **reactions** linking, at one side, sample TSH to a solid phase of paramagnetic streptavidin-coated microparticles by means of biotinylated monoclonal TSH-specific antibody and, at the other side, a Ru-labeled TSH-specific antibody. Sepn. of bound and unbound TSH is made by a magnet, and **luminescence** from a **luminophore** is triggered **electrochem.** This new assay to measure TSH has an imprecision and a functional sensitivity of the third generation methods that can distinguish active hyperthyroidism from nonthyroidal diseases in accordance with recommendations of the American Thyroid Asscn. Large and small batches are conveniently analyzed and the low imprecision permits

singleton analyses.

REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER (13) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1997:459302 HCAPLUS
 DOCUMENT NUMBER: 127:199423
 TITLE: Enzymic determination of ethanol using "reagentless" electrocatalyzed luminol chemiluminescence
 AUTHOR(S): Atwater, James E.; Akse, James R.; Dehart, Jeffrey; Wheeler, Richard R., Jr.
 CORPORATE SOURCE: UMPQUA Research Company, Myrtle Creek, OR, 97457, USA
 SOURCE: Analytical Letters (1997), 30(8), 1445-1453
 CODEN: ANALBP; ISSN: 0003-2719
 PUBLISHER: Dekker
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Flow anal. methodol. is presented for the detn. of aq. ethanol in concns. between 3-340 .mu.M. Alc. oxidase catalyzes the prodn. of hydrogen peroxide which is detected by luminol **chemiluminescence**. Adjustment of the pH to alk. conditions and addn. of the **luminophore** are implemented using in-line flow-through beds contg. cryst. media. The requirement for a homogeneous catalyst is eliminated by **electrochem.** initiation of **luminescence**. Traditional lab. reagents are replaced by packed beds contg. immobilized enzyme, solid phase basification media, and cryst. luminol. The methodol. is suitable for application in both continuous flow and flow injection anal. configurations.

L15 ANSWER (14) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1996:742006 HCAPLUS
 DOCUMENT NUMBER: 126:149655
 TITLE: Energetics and kinetics of homogeneous **electrochemiluminescent** electron transfer **reactions** in naphthalimide solutions
 AUTHOR(S): Borzenko, O. V.; Bykh, A. I.; Rozhitski, N. N.
 CORPORATE SOURCE: Khar'kov State Technical Univ. Electronics, Khar'kov, 310726, Ukraine
 SOURCE: Russian Journal of Electrochemistry (Translation of Elektrokimiya) (1996), 32(11), 1273-1278
 CODEN: RJELE3; ISSN: 1023-1935
 PUBLISHER: MAIK Nauka/Interperiodica
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Free activation energies and rate consts. for bimol. **reactions** of electron transfer (RET) between electrogenerated radical ions A⁻ and A⁺ of **electrochemiluminophores** A (substituted naphthalimides) are calcd. A correlation anal. is conducted for the 1st time, yielding mechanisms and kinetics of RET that occur in an anomalous (in terms of formation of nonexcited products) region of electron transitions. The correlation dependences of the **electrochemiluminescence** (ECL) intensity on the free activation energy of RET are plotted. The correlation coeffs. pertaining to each series of naphthalimide compds. under study are found for different electrolysis conditions. Comparing the above dependences and coeffs. shows adequacy of the expressions proposed for the calcn. of rate const. inherent in homogeneous RET. The calcs. are made in the framework of the known theories, describing intermol. exothermic electron transitions, which most closely coincide with the exptl. dependences of the ECL intensity on the free activation energy.

L15 ANSWER (15) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1996:741954 HCAPLUS

DOCUMENT NUMBER: 126:136813
 TITLE: The application of the **electrochemiluminescence**
 * **method for studying the mechanism of electrode**
 *****reactions** complicated by subsequent chemical
 stages: mechanisms of the oxidation **reaction**
 and anodic **electrochemiluminescence** in
 systems containing sodium tetraphenylborate
 AUTHOR(S): Belash, E. M.; Rozhitskii, N. N.
 CORPORATE SOURCE: Khar'kov State Technical Univ. Electronics, Khar'kov,
 310726, Ukraine
 SOURCE: Russian Journal of Electrochemistry (Translation of
 Elektrokimiya) (1996), 32(11), 1263-1272
 CODEN: RJELE3; ISSN: 1023-1935
 PUBLISHER: MAIK Nauka/Interperiodica
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The anodic **reaction** and homogeneous oxidn. of the Ph4B- were
 studied by the **electrochemiluminescence** (ECL) technique. Anodic
 ECL of a no. of **electrochemiluminophores** is discovered during
 electrolysis by a unipolar pulsed or const. voltage in a volumetric cell
 with ordinary electrodes. The ECL of 1,5-diphenyl-3-styrylpyrazoline in
 conjunction with Ph4BNa, and the calcd. parameters of the ECL diffusion
 kinetics demonstrate that the near-anode ECL is caused by a strongly
 exothermic interaction of electrogenerated radical cations with the
 Ph.bul. free radicals. The latter are intermediate products of
 homogeneous oxidn. of Ph4B- by the radical cations.

L15 ANSWER (16) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

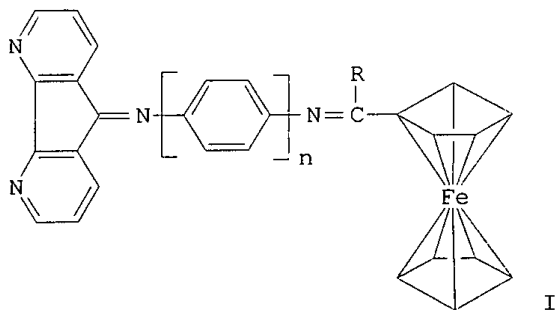
ACCESSION NUMBER: 1996:464529 HCAPLUS
 DOCUMENT NUMBER: 125:109657
 TITLE: Rate measurements of biomolecular **reactions**
 using **electrochemiluminescence**
 INVENTOR(S): Nacamulli, Laurette; Leland, Jonathan K.; Hayes,
 Stephanie A.
 PATENT ASSIGNEE(S): Igen, Inc., USA
 SOURCE: PCT Int. Appl., 55 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9617248	A1	19960606	WO 1995-US15982	19951204
W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5527710	A	19960618	US 1994-347984	19941202
CA 2206335	AA	19960606	CA 1995-2206335	19951204
AU 9645966	A1	19960619	AU 1996-45966	19951204
AU 711459	B2	19991014		
JP 10508104	T2	19980804	JP 1995-519172	19951204
EP 871891	A1	19981021	EP 1995-944075	19951204
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
PRIORITY APPLN. INFO.:			US 1994-347984	19941202
			WO 1995-US15982	19951204

AB A biomol. **reaction**, such as an enzymic or affinity
binding reaction, is effected in an **electrochem**

. cell with a mixt. of reagents including a **luminophor** which will relate the concn. of a reactant, a **reaction** partner, or the **reaction** product of a **reaction** partner to the **electrochemiluminescent** intensity to det. the rate of the biomol. **reaction**. The **reaction** partner is a reagent which reacts with the reactant and which itself or its **reaction** product participates with the **luminophor** to cause ECL emissions. The ECL intensity is modulated with a series of elec. pulses which are applied to the mixt. of reagents at a preselected potential for preselected intervals of time and duration. The intensity is measured during those intervals to provide a timed series of values (P). The same expt. is repeated twice more, once wherein the modulation is conducted after the **reaction** has gone to completion to obtain the timed series of values (C), and the last time the **reaction** is performed in the absence of the **reaction** partner to obtain the timed series of values (B). The results are normalized (N) using the formula $N = (P - B)/(C - B)$ to obtain a series of values (N) which are plotted to obtain the time **course** of **reaction**.

L15 ANSWER 17 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1994:425392 HCAPLUS
 DOCUMENT NUMBER: 121:25392
 TITLE: Synthesis and intramolecular energy transfer of the ruthenium-ferrocene polynuclear complexes
 AUTHOR(S): Duan, Chunying; You, Xiaozeng; Tao, Hui; Zhu, Longgen
 CORPORATE SOURCE: Coord. Chem. Inst., Nanjing Univ., Nanjing, 210008, Peop. Rep. China
 SOURCE: Gaodeng Xuexiao Huaxue Xuebao (1993), 14(11), 1492-7
 CODEN: KTHPDM; ISSN: 0251-0790
 DOCUMENT TYPE: Journal
 LANGUAGE: Chinese
 GI



AB [L2Ru(bpy)](PF6)2 (L = I; R = H, Me, n = 0-2) and [FeL3](PF6)2 were prep'd. and characterized. The luminescence of the chromophore Ru(II) is quenched by the **luminophor** Fe(II), and efficient intramol. energy transfer from the chromophore Ru(II) to the **luminophor** Fe(II) occurs in these bimetallic complexes. The efficiency of the intramol. energy transfer is related to the no. of the **luminophor** Fe(II) around the chromophore Ru(II) and the distance between the Ru(II) and Fe(II) in the bimetallic complexes.

L15 ANSWER 18 OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1992:50213 HCAPLUS
 DOCUMENT NUMBER: 116:50213
 TITLE: Intramolecular energy transfer in ruthenium(II)-chromium(III) chromophore-luminophore

AUTHOR(S): complexes. Ru(bpy)₂[Cr(cyclam)(CN)₂]²⁴⁺
Bignozzi, Carlo Alberto; Bortolini, Olga; Chiorboli, Claudio; Indelli, Maria Teresa; Rampi, Maria Anita; Scandola, Franco

CORPORATE SOURCE: Dip. Chim., Univ. Ferrara, Ferrara, 44100, Italy

SOURCE: Inorganic Chemistry (1992), 31(2), 172-7
CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New chromophore-lumophor RuII(bpy)₂[CrIII(cyclam)(CN)₂]²⁴⁺ (bpy = 2,2'-bipyridine) was synthesized and characterized. Visible light absorption by the Ru(bpy)₂²⁺ chromophore leads to emission from the Cr(cyclam)(CN)₂⁺ **luminophor**, as a consequence of efficient ($\phi_{\text{ET}} = 0.99$) and fast (sub-ns time scale) chromophore-**luminophor** exchange energy-transfer process. The emission is intense ($\Phi_{\text{EL}} = 5.3 \times 10^{-3}$ in H₂O) and long-lived ($\tau = 260 \mu\text{s}$ in H₂O). The photophys. properties of the **luminophor** are slightly perturbed by interaction with the chromophore, resulting in a sharper emission band shape and shorter radiative and radiationless lifetimes. The presence of a Ru(II) \rightarrow Cr(III) intervalence transfer state, hardly detectable in the ground-state spectrum, is revealed by the excited-state absorption spectrum of the chromophore-**luminophor** complex.

L15 ANSWER (19) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1990:640046 HCAPLUS

DOCUMENT NUMBER: 113:240046

TITLE: Electrogenerated chemiluminescence: An oxidative-reduction type ECL **reaction** sequence using tripropyl amine

AUTHOR(S): Leland, Jonathan K.; Powell, Michael J.

CORPORATE SOURCE: IGEN Inc., Rockville, MD, 20852, USA

SOURCE: Journal of the Electrochemical Society (1990), 137(10), 3127-31
CODEN: JESOA; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new electrogenerated **chemiluminescence** (ECL) **reaction** with utilizes tri-Pr amine and Ru(bpy)₃²⁺ is presented. The mechanism of light generation appears general enough to include a range of amines and **luminophors**. An oxidative-redn. mechanism is proposed. Upon **electrochem.** oxidn. of both the **luminophor** and amine, a strong emission is obsd. Voltammetric anal. reveals the potential for greatest light emission at the tri-Pr amine oxidn. The emission is from the excited state of Ru(bpy)₃²⁺. An electron transfer **reaction** from the deprotonated tri-Pr amine radical and Ru(bpy)₃³⁺ is the central **reaction** for excited state prodn. An est. of the ECL efficiency cannot be made owing to the complex nature of the **reaction**.

L15 ANSWER (20) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:642953 HCAPLUS

DOCUMENT NUMBER: 109:242953

TITLE: Synthetic routes to new polypyridyl complexes of osmium(II)

AUTHOR(S): Kober, Edward M.; Caspar, Jonathan V.; Sullivan, B. Patrick; Meyer, Thomas J.

CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Chapel Hill, NC, 27514, USA

SOURCE: Inorganic Chemistry (1988), 27(25), 4587-98

CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB New luminescent complexes of Os(II) that contain either 2,2'-bipyridine (bpy) or 1,10-phenanthroline (phen) as the chromophoric acceptor ligand

were prepd. by a combination of established and new synthetic methods. Extensive use of Os(IV) and Os(III) precursors, e.g., OsIV(bpy)Cl₄ and mer-OsIII(PMe₂Ph)Cl₃, led to the prepn. of materials with ancillary ligands such as tertiary phosphines as preparative intermediates, including OsIII(bpy)(PMe₂Ph)Cl₃ and cis-OsII(phen)LCl₂ (L = phosphines). Further substitution of Cl⁻ into complexes such as these gave emissive Os(II) complexes. Another new synthetic route utilizes the versatile Os(II) precursor Os(bpy)₂CO₃, which allows the facile prepn. of dicationic, disubstituted species such as [Os(bpy)₂(nor)]²⁺ (nor = norbornadiene). Another general procedure, based on the control of solvent and temp. in the substitution chem. of cis-Os(bpy)₂Cl₂, was further developed to produce a variety of cis- [Os(bpy)₂L₁Cl]⁺ and cis-[Os(bpy)₂L₁L₂]²⁺ (L₁ = phosphine, arsine, N-donor ligand or olefin). In a few cases, phosphine entering groups cause the cis geometry to be unfavorable and new trans-[Os(bpy)₂L₂]²⁺ were isolated. Because a major emphasis of this work was to develop a wide variety of **luminophors** based on OsII-bpy polypyridine type chromophores, the resultant complexes comprise the largest family of transition-metal-bases excited-state reagents with tunable photophys. and redox properties available. When possible, the new complexes were characterized by UV-visible and emission spectroscopy, cyclic voltammetry and ³¹P and/or ¹H NMR spectroscopy.

L15 ANSWER (21) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:578804 HCAPLUS

DOCUMENT NUMBER: 109:178804

TITLE: Evidence for a radical intermediate in the anodic oxidation of reduced nicotinamide adenine dinucleotides obtained by electrogenerated chemiluminescence

AUTHOR(S): Ludvik, J.; Volke, J.

CORPORATE SOURCE: J. Heyrovsky Inst. Phys. Chem. Electrochem., Czech. Acad. Sci., Prague, 182 23, Czech.

SOURCE: Analytica Chimica Acta (1988), 209(1-2), 69-78

CODEN: ACACAM; ISSN: 0003-2670

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electrogenenerated chemiluminescence is used to show that the radicals NAD[•] and NADP[•] are intermediates in the electrooxidn. of NADH and NADPH at a Pt anode in anhyd. or partly aq. (up to 15 vol.%) DMSO. An ECE mechanism seems to predominate. The use of DMSO proved to be very convenient, with the advantage of enabling electrogenerated chemiluminescence to be obtained in partly aq. media even with ionic substances as substrates. The method is useful in proving the existence of unstable radical intermediates in redox processes, even for relatively large mols. such as NADH and NADPH.

L15 ANSWER (22) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1987:563894 HCAPLUS

DOCUMENT NUMBER: 107:163894

TITLE: Mechanism of **electrochemiluminescence** of chloride ion-containing compositions

AUTHOR(S): Bykh, A. I.; Kukoba, A. V.; Rozhitskii, N. N.

CORPORATE SOURCE: Khar'k. Inst. Radioelektron., Kharkov, USSR

SOURCE: Elektrokhiimiya (1987), 23(7), 928-35

CODEN: ELKKAX; ISSN: 0424-8570

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The redn. and oxidn. of some **organoluminophors** were investigated by using voltammetry with simultaneous recording of **electrochemiluminescence**. In aprotic solvents contg. Cl⁻, the increase of the intensity of the **chemiluminescence** is explained by the partitioning of Cl⁻ in the homogeneous **reaction** with cation radicals (A[•]) and formation of new radicals ACl[•]. The

reaction of electron transfer between AlCl₃.bul. and electrogenerated anion radicals is responsible for the chemiluminescence signal due to the deactivation of the 1A.beta.ull mols.

L15 ANSWER (23) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1987:127768 HCAPLUS
 DOCUMENT NUMBER: 106:127768
 TITLE: investigation of two radical intermediates in the anodic oxidation of 1,4-dihydropyridines by **electrochemiluminescence**
 AUTHOR(S): Ludvik, Jiri; Volke, Jiri; Pragst, Fritz
 CORPORATE SOURCE: J. Heyrovsky Inst. Phys. Chem. Electrochem., Czechoslovak Acad. Sci., Prague, 118 40, Czech.
 SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1986), 215(1-2), 179-90
 CODEN: JEIEBC; ISSN: 0022-0728
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The **chemiluminescence** generated in the anodic oxidn. of 1,4-dihydropyridines (PyRH) in the presence of 9,10-diphenylanthracene (DPA) [1499-10-1] or of bis-[1,2,3-trimethyl-1,2-dihydrobenzimidazolyl-(2)] [94887-83-9] **luminophor** systems was investigated at a rotating Pt disk electrode and by cyclic voltammetry connected with **luminescence** intensity measurements in a 1:1 MeCN + toluene mixt. New findings on the **electroluminescence** of PyRH are reported; the cation radicals PyRH.bul.+ are the primary intermediates. The shape and the intensity of the **luminescence**-potential curves are discussed in terms of structure. If $E_{1/2ox}(PyRH) < E_{1/2ox}(DPA)$, the system PyRH/DPA is a practical example of the homogeneous redox catalysis of **electrochem. reactions**.

L15 ANSWER (24) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1987:77689 HCAPLUS
 DOCUMENT NUMBER: 106:77689
 TITLE: Structure and redox and photophysical properties of a series of ruthenium heterocycles based on the ligand 2,3-bis(2-pyridyl)quinoxaline
 AUTHOR(S): Rillema, D. Paul; Taghdiri, Donna G.; Jones, Daniel S.; Worl, Laura A.; Meyer, Thomas J.; Levy, Henri A.; Keller, Charles D.
 CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Charlotte, NC, 28223, USA
 SOURCE: Inorganic Chemistry (1987), 26(4), 578-85
 CODEN: INOCAJ; ISSN: 0020-1669
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The prepn., structure, and redox and photophys. properties of [Ru(bpy)_n(BL)_{3-n}]²⁺ (n = 0-2; bpy = 2,2'-bipyridine; BL = 2,3-bis(2-pyridyl)quinoxaline) are described. [Ru(bpy)₂(BL)](PF₆)₂ crystd. in the monoclinic space group P2₁/a with a 14.664(4), b 16.345(5), c 18.978(5) .ANG., .beta. 100.19(2).degree., Z = 4, R = 0.0672 for 5766 reflections with I > .sigma.(I). The N-Ru bond distances were Ru-N(pyridine) = 2.06 .ANG. (av.) and Ru-N(pyzazine) = 2.096(4) .ANG.. Absorption spectra contained bands (250-300 nm) in the UV region that were assignable to ligand .pi. .fwdarw. .pi.* transitions and visible bands (517-300 nm) that were assignable to d.pi. .fwdarw. .pi.* MLCT transitions. Redn. potentials for the Ru³⁺/2+ couples were 1.40-1.70 V vs. SSCE. Three redns. were obsd. and assigned to the 1-electron redn. of each bidentate ligand, commencing with BL and then followed by bpy. Weak luminescence (.PHI.r = 0.012-0.002 in 4:1 EtOH-MeOH) was obsd., and cor. emission energy max. were located at 766 +/- 4 nm. Excited-state redn. potentials were estd. from the difference between emission energy max. and

ground-state redn. potentials. Potentials for excited-state $\text{Ru}^{2+}/+$ couples were detd. Excited-state lifetimes at room temp. in 4:1 EtOH-MeOH were 167 to <70 ns. Temp.-dependent-lifetime (90-298 K) data gave evidence for $\Delta E'$ values of 1100 \pm 300 cm^{-1} . Emission spectral fitting suggested contributions to the spectral profile from medium-energy ring stretching modes and low-energy metal-ligand stretching vibrations. A plot of E_{00} vs. $\Delta E_{1/2}$ for a series of Ru **luminophores**, where $\Delta E_{1/2} = E_{1/2}^{+2+} - E_{1/2}^{+/+}$, was linear with a slope of 0.87 and a correlation coeff. of 0.97.

L15 ANSWER (25) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1986:236607 HCAPLUS
 DOCUMENT NUMBER: 104:236607
 TITLE: Electrogenenerated chemiluminescence in mechanistic investigations of electroorganic **reactions**. Part VI. Sensitive detection of cation radicals by bis[1,2,3-trimethyl-2,3-dihydrobenzimidazolyl-(2)]/**luminophor** systems
 AUTHOR(S): Pragst, F.; Niazymbetov, M.
 CORPORATE SOURCE: Sekt. Chem., Humboldt-Univ., Berlin, DDR-1040, Ger. Dem. Rep.
 SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1986), 197(1-2), 245-64
 CODEN: JEIEBC; ISSN: 0022-0728
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Cation radicals D^+ , formed as the primary products in an anodic process, produce a luminescence signal in the potential region of the voltammetric wave of D, if the oxidn. is carried out in the presence of bis[1,2,3-trimethyl-2,3-dihydrobenzimidazolyl-(2)], B2, and a suitable **luminophor**, A, such as 9,10-diphenylanthracene (DPA), 2-phenyl-4-p-biphenyl-1,3,4-oxadiazole (PBD) or other highly fluorescent arom. hydrocarbons, oxazoles or oxadiazoles. The use of this luminescence signal for a sensitive detection of D^+ was tested at a rotating disk electrode in a 1:1 MeCN + PhMe mixt. as the solvent for a series of arom. and aliph. amines, Δ -pyrazolines, carbazole, indole, 1,4-dihydropyridines, phenols, methoxybenzenes and tri-arylphosphines. For stable cation radicals the luminescence-potential curve shows a prewave at the foot of the voltammetric wave of D and a luminescence plateau in the limiting current region. In the case of a chem. **reaction** of D^+ the plateau is diminished or vanishes completely and the prewave changes to a prepeak between 20 and 100 mV below $E_{1/2}(\text{D})$. The prepeak also decreases with increasing rate of the subsequent **reaction**, but is still seen for very short lived D^+ , e.g. for hydroquinone, carbazole or triphenylphosphine. The advantages and the restrictions of the method are discussed in the context of the luminescence mechanism.

L15 ANSWER (26) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1977:497777 HCAPLUS
 DOCUMENT NUMBER: 87:97777
 TITLE: Modeling of neural mechanisms in the **electrochemiluminescent** cell. Communication 2. Adaptation
 AUTHOR(S): Leonov, V. P..
 CORPORATE SOURCE: USSR
 SOURCE: Problemy Bioniki (1976), 16, 136-40
 CODEN: PBNKAV; ISSN: 0555-2656
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB The neuronal adaptation mechanism was mimicked in **electrochemiluminescent** cells (**electrochem.** cells contg. **luminophores** in their electrolyte solns.) in which the working

electrode was connected to 1 terminal of a square-wave impulse generator, a 2nd electrode was connected through a condenser to the other terminal of the generator, and 2 other electrodes were connected to a source of const. polarizing potential. The nerve impulse transmission, represented by **electrochemiluminescence**, was obsd. under appropriate conditions in solns. contg. 1,5-diphenyl-3-styrylpyrazoline (I) plus LiCl (as electrolyte) or Na tetraphenylborate plus I. The mechanisms for these **electrochemiluminescent reactions** are discussed. With increasing potential of the impulse on the working electrode above a threshold value, the **electrochemiluminescent** intensity (synaptic transmission) increased to a satn. value. With increasing polarizing potential, the **luminescence** intensity at a given impulse potential increased and the satn. value for **luminescence** was also increased. After the polarizing potential was turned off, **luminescence** initially increased and then slowly decreased. Thus, these systems mimic the general phenomena obsd. in neuronal adaptation.

L15 ANSWER (27) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1977:497776 HCAPLUS
 DOCUMENT NUMBER: 87:97776
 TITLE: Modeling of neural mechanisms in the
electrochemiluminescent cells. Communication
 I
 AUTHOR(S): Leonov, V. P.
 CORPORATE SOURCE: USSR
 SOURCE: Problemy Bioniki (1976), 16, 99-104
 CODEN: PBNKAV; ISSN: 0555-2656
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB **Electrochemiluminescent** cells (**electrochem.** cells contg. **luminophores** in their electrolyte solns.) were analyzed as possible models for synaptic excitation, inhibition, adaptation, and summation. In **electrochem.** cells contg. 1,5-diphenyl-3-styrylpyrazoline (I), **luminescence** (synaptic excitation) was obsd. when a I-cation radical reacted with a I-anion radical to form a **luminescent** excited mol. or when a 2nd electron was transferred to the I-cation radical. The anodic **reaction** representing the presynaptic input can be used to model summation (facilitation) with the rate of the **reaction** modeling spatial summation and the life-time of the I-cation radical modeling temporal summation. Control of the rate of the cathodic **reaction** mimics adaptation. In **electrochem.** cells contg. Na tetraphenylborate plus triphenylimidazole, 1,5-diphenyl-3-(p-chlorophenyl)pyrazoline, or dibenzyl, **electrochemiluminescence** was obsd. as the result of the formation of exciplexes between the tetraphenylborate anion and the cation radicals of the other compds. This system can mimic the same synaptic mechanism as the system contg. I. In addn., if a neg. impulse is applied to the synaptic electrode of this 2nd system before the pos. impulse, **luminescence** is inhibited. Thus, synaptic inhibition can also be modeled in this system.

L15 ANSWER (28) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1975:599692 HCAPLUS
 DOCUMENT NUMBER: 83:199692
 TITLE: Kinetics of aging of **electroluminophors**
 AUTHOR(S): Matisen, L.; Talviste, E.; Tammik, A.
 CORPORATE SOURCE: USSR
 SOURCE: Tartu Riikliku Ulikooli Toimetised (1975), 346, 132-41
 CODEN: UTGUA3; ISSN: 0494-7304
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB The aging of an EL-516 **electroluminophor** (also a surface-treated sample was examd.) in different relative humidity (over satd. solns. of

P2O5, LiCl, CaCl2, or NaBr) of the working medium for **electroluminescence** capacitors (prepd. by a dry dusting of the **electroluminophor** powder), was studied. The supposition about a 2-stage aging was confirmed; in the initial stage, the aging kinetics were mainly bimol., changing later (mostly after the brightness drop to <50%) into a distinct monomol. kinetics with a const. aging rate, independent of humidity. The aging kinetics can be used for predicting the **electroluminophor** service lifetime; the brightness level at which the change of the kinetics occurs can serve an indicator of the **luminophor** stability perfection. The possible aging **reactions** are discussed. The surface coating (K. V. Realo, et al., 1972) resulted in a shortening of initial aging stages (braked the **electrochem. decompn. of luminophors**) and a decrease of aging rate in the stage of monomol. kinetics (a decrease of impurity and vacancy diffusion).

L15 ANSWER (29) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1974:75550 HCAPLUS

DOCUMENT NUMBER: 80:75550

TITLE: Stability of powdered **electroluminophors** with protective electrochemical coatings

AUTHOR(S): Soshchin, N. P.; Talviste, E.; Tammik, A.

CORPORATE SOURCE: USSR

SOURCE: Tartu Riikliku Ulikooli Toimetised (1972), No. 292, 13-25

CODEN: UTGUA3; ISSN: 0494-7304

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The formation of protective layers on the surface of powd. ZnS **electroluminophors** led to some modifications of the parameters of the centers responsible for fast and slow decay of brightness. Coatings from compds. more electropos. than ZnS had the greatest effect on the decay processes. This agrees with the theory of **electrochem.** treatment of **electroluminescent** layer aging processes. This study showed the possibility of application of consecutive **electrochem. reactions** in **electroluminescent** capacitors.

L15 ANSWER (30) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1972:133008 HCAPLUS

DOCUMENT NUMBER: 76:133008

TITLE: Electrochemical nature of **electroluminophor** aging

AUTHOR(S): Soshchin, N. P.; Orlov, I. N.

CORPORATE SOURCE: USSR

SOURCE: Elektrolyumin. Tverd. Tel, Tr. Soveshch. Elektrolyumin., 3rd (1971), Meeting Date 1969, 279-83. Editor(s): Gol'dman, A. G. "Naukova Dumka": Kiev, Ukr. SSR.

CODEN: 24PJAQ

DOCUMENT TYPE: Conference

LANGUAGE: Russian

AB The life of **luminophors** based on ZnS.Cu2S depends on the amt. of Cu, which decreases due to the **electrochem. oxidn. of Cu2S to CuS**. This diminishes the luminance of the **luminophor**. Also, the presence of CuS decreases the cond. of the **electroluminescent** layer. Some decrease of the emf. of an electrolytic cell formed in this layer can be attained by an introduction of more pos. compds., such as CdS or ZnSe, into the base of the **luminophor**.

L15 ANSWER (31) OF 31 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1971:545801 HCAPLUS

DOCUMENT NUMBER: 75:145801

TITLE: Generation of **luminophors** by the action of an electrical current on a sodium chloride melt and their optical properties

AUTHOR(S): Zemlicka, J.; Dolejsi, J.

CORPORATE SOURCE: Inst. Solid State Phys., Czech. Acad. Sci., Prague, Czech.

SOURCE: Kristall und Technik (1971), 6(2), K7-K11
CODEN: KRTEAW; ISSN: 0023-4753

DOCUMENT TYPE: Journal

LANGUAGE: German

AB By using chem. **reactions** that take place in a NaCl melt during **electrochem.** processes, optical, and particularly **luminescent** properties of NaCl crystals, are influenced. NaCl + M (M = Cu, Au, Fe, and Ni) **luminophors** were obtained by the action of d.c. on a NaCl melt. The O²⁻ ion is generated in the melt. This was identified from the spectral compn. of the fluorescence. This ion is responsible for the yellow fluorescence. The green and orange-yellow fluorescence is ascribed to oxochloro complexes. The O-Cl ligands that surround the central metal ions are assigned greater importance than the metal ion.

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=> d stat que l16

L1	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	ELECTROCHEM/BI
L2	13	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHOR/BI
L3	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHORE/BI
L7	13142	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINESC?
L8	275185	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L1 OR ?ELECTROCHEM?
L9	230077	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L7 OR ?LUMINESC?
L10	4251	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L8(L)L9
L11		SEL	PLU=ON	L3 1-	CHEM :	2 TERMS
L12	1	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L11
L13	3990	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L12 OR L2 OR ?LUMINOPHOR?
L14	48	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L10 AND L13
L15	31	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L14 AND (<u>REACTION OR COURSE</u> <u>OR BINDING</u>)
L16	17	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L14 NOT L15

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=> d ibib abs hitrn l16 1-17

L16 ANSWER 1 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:535693 HCAPLUS

DOCUMENT NUMBER: 137:301224

TITLE: Electrochemiluminoimmunoassay of hTSH at disposable oxide-coated n-silicon electrodes

AUTHOR(S): Helin, M.; Vare, L.; Hakansson, M.; Canty, P.; Hedman, H.-P.; Heikkila, L.; Ala-Kleme, T.; Kankare, J.; Kulmala, S.

CORPORATE SOURCE: Laboratory of Inorganic and Analytical Chemistry, Helsinki University of Technology, Helsinki, Hut, 02015, Finland

SOURCE: Journal of Electroanalytical Chemistry (2002), 524-525, 176-183
CODEN: JECHE5

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cathodic pulse polarization of thin insulating film-coated electrodes enables the generation of **electrochemiluminescence** (ECL) by tunnel emission of hot electrons from the Fermi level of the conductor material of the conductor-insulator-aq. electrolyte soln. junction to the solutes at the vicinity of the electrode surface and probably also to the conduction band of water. The latter process can generate hydrated electrons as strongly reducing slightly longer-lived cathodic intermediates, which are known to be able to induce **chemiluminescence** (CL) of various types of **luminophors** having very different photophys. and chem. properties. The generation of the above-mentioned cathodic primary species provides good possibilities to use many types of **luminophors** as label mols. in sensitive immuno and DNA-probing assay. This paper introduces an **electrochemiluminoimmunoassay** (ECLIA) for human TSH (hTSH) at oxide-coated n-silicon electrodes and demonstrates the suitability of silicon electrodes covered with thermally grown silicon dioxide film as disposable working electrodes (WES) in sensitive time-resolved ECL (tr-ECL) measurements in aq. soln. The label chelate can be detected almost down to picomolar level and the calibration curve of the chelate covers more than five orders of magnitude of chelate concn. Also the calibration curve of the immunometric hTSH assay was found to be linear over a wide range of hTSH concn., the detection limit of the hormone being below 1 mU l⁻¹ (4 pmol l⁻¹).

REFERENCE COUNT: 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER (2) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:149842 HCAPLUS

DOCUMENT NUMBER: 136:352197

TITLE: Hot electron-induced electrogenerated chemiluminescence of 1-aminonaphthalene-4-sulphonate at oxide-covered aluminium electrodes in aqueous solution

AUTHOR(S): Helin, M.; Hakansson, M.; Canty, P.; Spehar, A.-M.; Kulmala, S.

CORPORATE SOURCE: Department of Inorganic and Analytical Chemistry, Helsinki University of Technology, HUT, Helsinki, FIN-00215, Finland

SOURCE: Analytica Chimica Acta (2002), 454(2), 193-201
CODEN: ACACAM; ISSN: 0003-2670

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electrogenerated **chemiluminescence** of 1-aminonaphthalene-4-sulfonate (ANS) provides a sensitive means for the detection of the ANS in aq. soln. when oxide-covered aluminum electrodes are used as tunnel emission electrodes and cathodic pulse polarization is used for the excitation of the **luminophore**. During the pulse polarization of insulating oxide film-coated aluminum cathodes, hot electrons are tunnel emitted from the aluminum to the aq. electrolyte soln. by direct field-assisted tunneling (in the case of oxide films of thickness 2-6 nm) or by Fowler-Nordheim (FN) tunneling in the cases of thicker oxide films. As a result of direct tunnel emission of these energetic electrons, the generation of hydrated electrons (eaq-) becomes possible. These **electrochem.** generated, extremely strong reductants (dry hot or hydrated electrons) make the efficient excitation of various types of **luminophores** at thin insulating film-covered electrodes possible and provide a means for sensitive immunoassays and DNA-probing assays when these **luminophores** are used as label mols.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER (3) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2001:397155 HCAPLUS
 DOCUMENT NUMBER: 135:13603
 TITLE: Thin film fiber optic electrode sensor array and apparatus
 INVENTOR(S): Pantano, Paul; Jin, Eunsook S.; Khan, Samina S.; Stokes, Harold W., Jr.
 PATENT ASSIGNEE(S): Board of Regents the University of Texas System, USA
 SOURCE: PCT Int. Appl., 69 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001038853	A2	20010531	WO 2000-US32478	20001129
WO 2001038853	A3	20020103		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
US 6487326	B1	20021126	US 1999-450156	19991129

PRIORITY APPLN. INFO.: US 1999-450156 A 19991129

AB An app. and method is disclosed for detecting an analyte using a fiber optic electrochem. sensor that includes a fiber optic layer, an elec. conductive translucent metallic layer and a light energy absorbing dye layer.

L16 ANSWER 4 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:795963 HCAPLUS
 TITLE: Synthesis and characterization of d5 Re(II) diphosphine **luminophores**.
 AUTHOR(S): Enyeart, Stephanie J.; Kirchhoff, Jon R.
 CORPORATE SOURCE: Department of Chemistry, University of Toledo, Toledo, OH, 43606, USA
 SOURCE: Abstracts of Papers - American Chemical Society (2000), 220th, INOR-515
 CODEN: ACSRAL; ISSN: 0065-7727
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal; Meeting Abstract
 LANGUAGE: English

AB A series of rhenium complexes with the general formulas $[\text{Re}(\text{PP})_3]^{n+}$ and $[\text{Re}(\text{PP})_2(\text{PP}')_2]^{n+}$, where PP and PP' are either 1,2-bis(diethylphosphino)ethane (depe) or 1,2-bis(dimethylphosphino)ethane (dmpe) and n=1 or 2, were synthesized and characterized. A new synthetic method to low valent Re(I) and Re(II) complexes was developed involving a redn./substitution approach starting with a Re(III) precursor in 1,2-dimethoxyethane. Depending on the combination of the ligand donating properties, either the Re(I) or Re(II) complex was prepd. While the Re(I) complexes do not **luminesce** in room temp. soln., the Re(II) complexes are rare examples of highly **luminescent** d5 transition metal complexes. The series was characterized by absorption and emission spectroscopy, **electrochem.**, and single crystal X-ray anal. In situ conversion of the Re(I) complexes to the Re(II) analogs by **luminescence spectroelectrochem.** permitted characterization of the Re(II) excited state for all complexes. Correlations between the structural properties and the **electrochem**

. and spectroscopic properties will be discussed.

L16 ANSWER (5) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1999:300532 HCAPLUS
 DOCUMENT NUMBER: 131:65187
 TITLE: Quenching of Electrogenenerated Chemiluminescence by Phenols, Hydroquinones, Catechols, and Benzoquinones
 AUTHOR(S): McCall, J.; Alexander, C.; Richter, M. M.
 CORPORATE SOURCE: Department of Chemistry, Southwest Missouri State University, Springfield, MO, 65804, USA
 SOURCE: Analytical Chemistry (1999), 71(13), 2523-2527
 CODEN: ANCHAM; ISSN: 0003-2700
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Efficient quenching of Ru(bpy)32+ (bpy = 2,2'-bipyridine) electrogenerated **chemiluminescence** was obsd. in the presence of phenols, catechols, hydroquinones, and benzoquinones. In most instances, quenching is obsd. with 100-fold excess of quencher over Ru(bpy)32+, with complete quenching obsd. at 1000-2000-fold excess. The mechanism of quenching is believed to involve energy transfer from the excited-state **luminophor** to benzoquinone. In the case of phenols, catechols, and hydroquinones, quenching is believed to occur via a benzoquinone deriv. formed at the electrode surface. **Luminescence** and UV-visible expts. coupled with bulk electrolysis support the formation of benzoquinone products upon **electrochem.** oxidn.
 REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER (6) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1999:196541 HCAPLUS
 DOCUMENT NUMBER: 130:290707
 TITLE: **Electrochemiluminescent** labels for applications in fully aqueous solutions at oxide-covered aluminum electrodes
 AUTHOR(S): Kulmala, S.; Helin, M.; Ala-Kleme, T.; Vare, L.; Papkovsky, D.; Korpela, T.; Kulmala, A.
 CORPORATE SOURCE: PO Box 6100, Department of Chemical Technology, Laboratory of Inorganic and Analytical Chemistry, Helsinki University of Technology, FIN-02015 HUT, Helsinki, Finland
 SOURCE: Analytica Chimica Acta (1999), 386(1-2), 1-6
 CODEN: ACACAM; ISSN: 0003-2670
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Oxide-covered aluminum electrodes as well as other tunnel emission electrodes allow various label mols. having very different redox and optical properties to be excited cathodically. Low detection limits are obtained and the linear calibration concn. range of the labels spans 5 or 6 orders of magnitude. The lowest detection limits are obtained with Tb(III) chelates which can be detected down to pico-molar levels in aq. soln. using time-resolved measurement techniques. **Luminophores**, such as, 9-fluorenylmethyl chloroformate, derivs. of fluorescein and its analogs, arom. lanthanide(III) chelates, various coumarins and porphyrins can be used as labels emitting in different spectral regions. The extraordinary anal. power of the tunnel emission electrodes lies in the possibility of simultaneously exciting several different labels emitting either in the UV, visible or NIR range and **luminescence** lifetimes varying from the ns to the ms range. Therefore, wavelength or time discrimination or their combination can be exploited in sepn. of the **electrochemiluminescence** signals from different labels.
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 7 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:143857 HCAPLUS
TITLE: Quenching of **electrochemiluminescent** excited states by phenols, catechols, benzoquinones and catechols
AUTHOR(S): Richter, M. M.; McCall, J.; Alexander, C.
CORPORATE SOURCE: Dept. of Chemistry, Southwest Missouri State University, Springfield, MO, 65804, USA
SOURCE: Book of Abstracts, 217th ACS National Meeting, Anaheim, Calif., March 21-25 (1999), ANYL-021. American Chemical Society: Washington, D. C. CODEN: 67GHA6
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Efficient quenching of Ru(bpy)32+ (bpy = 2,2'-bipyridine) electrogenerated **chemiluminescence** (ECL) was obsd. in the presence of phenols, catechols, hydroquinones and benzoquinones. Spectroscopic and **electrochem.** studies indicate that the mechanism of quenching involves energy transfer from the excited state **luminophore** to benzoquinone; or in the case of phenols, hydroquinones and catechols, a benzoquinone deriv. formed directly at the electrode. Results to date as well as potential applications will be discussed.

L16 ANSWER 8 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1999:143856 HCAPLUS
TITLE: Phenol substituent effects on the quenching of electrogenerated chemiluminescent excited states
AUTHOR(S): McCall, J.; Richter, M. M.
CORPORATE SOURCE: Dept. of Chemistry, Southwest Missouri State University, Springfield, MO, 65804, USA
SOURCE: Book of Abstracts, 217th ACS National Meeting, Anaheim, Calif., March 21-25 (1999), ANYL-020. American Chemical Society: Washington, D. C. CODEN: 67GHA6
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Efficient quenching of Ru(bpy)32+ (bpy = 2,2'-bipyridine) electrogenerated **chemiluminescence** (ECL) has been obsd. in the presence of phenol and substituted phenols (e.g., 4-fluorophenol). Spectroscopic and **electrochem.** studies indicate that the mechanism of quenching involves energy transfer from the excited state **luminophore** to benzoquinone; or in the case of phenols, hydroquinones and catechols, a benzoquinone deriv. formed directly at the electrode. We have shown that the efficiency of ECL quenching is directly related to both the position of the substituent on the arom. ring and its identity. Results to date as well as potential applications will be presented.

L16 ANSWER 9 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 1998:302409 HCAPLUS
DOCUMENT NUMBER: 129:73299
TITLE: Primary cathodic steps of electrogenerated chemiluminescence of lanthanide(III) chelates at oxide-covered aluminum electrodes in aqueous solution
AUTHOR(S): Kulmala, S.; Kulmala, A.; Ala-Kleme, T.; Pihlaja, J.
CORPORATE SOURCE: Department of Chemistry, University of Turku, Turku, FIN-20014, Finland
SOURCE: Analytica Chimica Acta (1998), 367(1-3), 17-31
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The primary processes occurring at cathodically polarized oxide-covered aluminum electrode are discussed in detail. It is pointed out that more energetic cathodic processes can be induced in aq. media at thin insulating film-coated electrodes than at any semiconductor or active metal electrode. It is proposed that tunnel emission of hot electrons with energies well above the level of the conduction band edge of water occur, and the thermalization and solvation of the emitted electrons can result in generation of hydrated electrons. The cathodically pulse-polarized oxide-covered aluminum also generates a strong oxidant (or oxidants) at the oxide/electrolyte interface, and it is proposed that this species is the hydroxyl radical which is generated either by cathodic high field-induced ejection of self-trapped holes as oxygen dianions (i.e. oxide radical ions) into the electrolyte soln., or by the action of anion vacancies and/or F⁺-centers as the primary oxidants capable of oxidizing hydroxide ions or the hydroxyl groups of the hydroxylated surface on the oxide film. These radicals, hydrated electrons/hydroxyl radicals, can act as mediating reductants/oxidants in redn./oxidn. of solutes. The formation of the primary species is monitored by **electrochemiluminophores** which cannot be cathodically excited at active metal electrodes in fully aq. solns., but which can be chem. excited in aq. media in the simultaneous presence of highly reducing and highly oxidizing radicals.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER (10) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:486258 HCAPLUS

TITLE: Fluorescent pressure sensitive coatings without paint binders.

AUTHOR(S): West, Jeremy P.; Oglesby, Donald M.; Brown, Kenneth; Upchurch, Billy T.

CORPORATE SOURCE: Langley Research Center, NASA, Hampton, VA, 23681, USA

SOURCE: Book of Abstracts, 214th ACS National Meeting, Las Vegas, NV, September 7-11 (1997), CHED-085. American Chemical Society: Washington, D. C.

CODEN: 64RNAO

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB In the past five years the use of coatings contg. **luminescent** mols. which are quenched by oxygen has become an important tool for obtaining global pressure measurements on model surfaces in wind tunnel testing. Virtually all of these coatings are based on mixing the **luminophore** with some sort of oxygen permeable polymer which serves as a binder for the coating. The mixt. is applied to the test model surface like a paint, thus the name pressure sensitive paint (PSP) is used to describe such coatings. Some high speed flight research requires testing at temps. as low as -150.degree.C. At these temps. binders become impermeable to oxygen. By chem. or **electrochem.** modifying the model metal surface we have produced oxygen pressure sensitive coatings which respond to very low (less than 500 ppm) oxygen concns. at temps. as low as -150.degree.C.

L16 ANSWER (11) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:346015 HCAPLUS

DOCUMENT NUMBER: 127:101493

TITLE: Generation of free radicals and **electrochemiluminescence** at pulse-polarized oxide-covered silicon electrodes in aqueous solutions

AUTHOR(S): Ala-Kleme, Timo; Kulmala, Sakari; Latva, Martti

CORPORATE SOURCE: Department of Chemistry, University of Turku, Turku, FIN-20014, Finland

SOURCE: Acta Chemica Scandinavica (1997), 51(5), 541-546

CODEN: ACHSE7; ISSN: 0904-213X

PUBLISHER: Munksgaard
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Cathodic pulse-polarization of thin-oxide-film-covered highly doped silicon electrodes induces tunnel emission of hot electrons into aq. electrolyte solns. probably resulting in an **electrochem.** generation of hydrated electrons. Generation of hydrated electrons allows simultaneous prodn. of sulfate radicals from peroxydisulfate ions, and hence, highly reactive radicals are generated in the vicinity of the electrode surface. Generated primary radical species can induce strong redox **luminescence** from various org. **chemiluminophores** and **luminescent** metal chelates, e.g., some lanthanide and transition metal chelates can be detected below nanomolar levels with a linear range of calibration curves of over six orders of magnitude.

L16 ANSWER 12 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:107484 HCAPLUS
DOCUMENT NUMBER: 126:115394
TITLE: Simultaneous assay method using lanthanide chelates as the **luminophore** for multiple labels
INVENTOR(S): Billadeau, Mark A.; Leland, Jonathan K.; Shen, Lihong; Gudibande, Satyanarayana R.
PATENT ASSIGNEE(S): Igen, Inc., USA
SOURCE: PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9641177	A1	19961219	WO 1996-US9870	19960606
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
AU 9664766	A1	19961230	AU 1996-64766	19960606
PRIORITY APPLN. INFO.:			US 1995-485715	19950607
			WO 1996-US9870	19960606

AB An **electrochemiluminescent** (ECL) detection method for simultaneous assays is disclosed. The method employs an excitation process whereby **luminophores** are excited through an antenna mechanism by using an oxidative or reductive coreactant. The **luminophores** can be lanthanide chelates, and a persulfate system is used to generate ECL. The ECL emissions may be sepd. either by measuring at different emission wavelengths or by electrode potentials.

L16 ANSWER 13 OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:100066 HCAPLUS
DOCUMENT NUMBER: 126:220025
TITLE: "Reagentless" flow analysis determination of hydrogen peroxide by electrocatalyzed luminol chemiluminescence
AUTHOR(S): Atwater, James E.; Akse, James R.; Dehart, Jeffrey; Wheeler, Richard R., Jr.
CORPORATE SOURCE: UMPQUA Research Company, Myrtle Creek, OR, 97457, USA
SOURCE: Analytical Letters (1997), 30(1), 21-31
CODEN: ANALBP; ISSN: 0003-2719
PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Flow anal. methodol. is presented for the detn. of micromolar levels of aq. H₂O₂ by luminol **chemiluminescence**. Adjustment of the pH to alk. conditions and addn. of the **luminophore** are implemented using in-line flow-through beds contg. cryst. media. The requirement for a homogeneous catalyst is eliminated by **electrochem.** initiation of **luminescence**. Traditional lab. reagents are replaced by packed beds contg. solid phase basification media, and cryst. luminol. The methodol. is suitable for application in both continuous flow and flow injection anal. configurations.

L16 ANSWER (14) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:459324 HCAPLUS

DOCUMENT NUMBER: 115:59324

TITLE: **Electrochemical** behavior of polycyclic arenes - activators of peroxide-oxalate **chemiluminescence**. The oxidation potential of substituted naphthalenes and anthracenes as their efficiency criterion

AUTHOR(S): Antonkina, O. A.; Smirnov, S. K.; Gitel', P. O.; Kryukova, E. V.; Tomilov, A. P.

CORPORATE SOURCE: Gos. Soyuzn. Nauchno-Issled. Inst. Org. Khim. Tekhnol., Moscow, USSR

SOURCE: Elektrokhiimiya (1991), 27(3), 394-401

CODEN: ELKKAX; ISSN: 0424-8570

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Studies of effectiveness of substituted naphthalenes and anthracenes were carried out for the activation of peroxide-oxalate chemiluminescence. The equation correlating the energetic characteristics of chemiluminescence and the oxidn. potential is discussed. An anal. of parameters of the derived equation was performed.

L16 ANSWER (15) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1977:143370 HCAPLUS

DOCUMENT NUMBER: 86:143370

TITLE: Aircraft probing of atmospheric ozone using a chemiluminescence method

AUTHOR(S): Osechkin, V. V.; Gushchin, G. P.; Pribytkov, L. D.; Samoilovich, V. G.; Dmitriev, M. T.

CORPORATE SOURCE: USSR

SOURCE: Trudy Glavnoi Geofizicheskoi Observatorii im. A.I. Voeikova (1976), 357, 161-9

CODEN: TGGQAJ; ISSN: 0376-1274

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB An aircraft ozonometer with a sensing element using a **chemiluminophore** prepd. from rhodamine S [12627-64-4], based on the technol. of V. H. Regener (1964) with slight change, is described. Aircraft sounding of atm. O₃ is done by **chemiluminescent** anal. of air withdrawn by compressor from the engine of a reactive aircraft in flight in the upper troposphere and lower stratosphere. Comparison of a series of parallel O₃ detns. made by **chemiluminescent** and **electrochem.** ozonometers showed that the **chemiluminescence** method had greater sensitivity. A trace of atm. O₃ concn. (vs. time) detd. by **chemiluminescent** ozonometer is presented for an April 1973 Moscow to Tashkent flight. The **chemiluminescent** ozonometer can be used to make stationary as well as in-flight measurements.

L16 ANSWER (16) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1976:515398 HCAPLUS

DOCUMENT NUMBER: 85:115398

TITLE: Nondestructive method for determining the reliability of electroluminescent indicators

AUTHOR(S): Nekrasov, V. M.; Dadeko, L. I.
 CORPORATE SOURCE: Kiev. Politekh. Inst., Kiev, USSR
 SOURCE: Dielektriki i Poluprovodniki (1973), 3, 113-18
 CODEN: DLPLAG; ISSN: 0136-3328
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB A method is described for the nondestructive testing of **electroluminescent** sign indicators, based on the study of the **electrochem.** aging processes of ZnS-Cu **luminophors**. The method allows detn. of the av., min., and max. lifetimes of the indicators from the measured values of the rectified c.d.

L16 ANSWER (17) OF 17 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1975:555129 HCAPLUS
 DOCUMENT NUMBER: 83:155129
 TITLE: Effect of surface-modifying coatings on the stability of powdered **electroluminophors**
 AUTHOR(S): Soshchin, N. P.; Talviste, E.; Tammik, A.
 CORPORATE SOURCE: USSR
 SOURCE: Mater. Vses. Soveshch. Elektrolyumin., 5th (1974), Meeting Date 1973, 42-7. Editor(s): Fok, M. V.; Rybalkina, L. P. Vses. Nauchno-Issled. Inst. Lyuminoforov Osobo Chist. Veshchestv: Stavropol, USSR. CODEN: 31IVAH
 DOCUMENT TYPE: Conference
 LANGUAGE: Russian

AB Study of the aging of **electroluminescent** phosphors coated with silicate (Sr₂SiO₄), siloxane, phosphate (Na₁₀.nP₂O₅), ZnS, CdS, and NaOH (10-3 wt. % soln.) showed that the change in **luminescence** brightness with time had 2 stages for each sample, indicating the presence of aging centers with a high degrdn. rate in addn. to **electrochem** . aging centers on the phosphor surface. All of the coatings except NaOH soln. decreased the aging rates in both stages. A ref. sample lost 46% of its brightness after 350 hr, whereas a CdS-coated sample lost only 22%.

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=> select hit rn l15 1-31
 NO E#s ASSIGNED

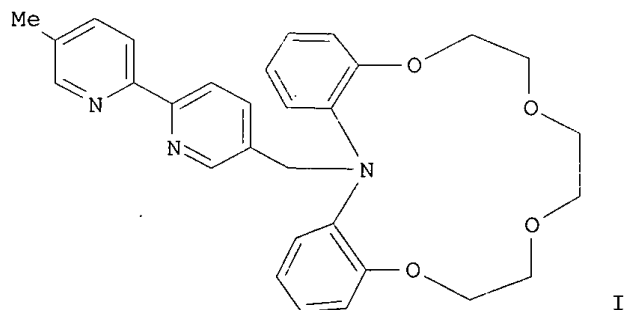
=> select hit rn l16 1-17
 NO E#s ASSIGNED

=> d stat que
 L1 1 SEA FILE=REGISTRY ABB=ON PLU=ON ELECTROCHEM/BI
 L2 13 SEA FILE=REGISTRY ABB=ON PLU=ON LUMINOPHOR/BI
 L3 1 SEA FILE=REGISTRY ABB=ON PLU=ON LUMINOPHORE/BI
 L7 13142 SEA FILE=REGISTRY ABB=ON PLU=ON LUMINESC?
 L8 275185 SEA FILE=HCAPLUS ABB=ON PLU=ON L1 OR ?ELECTROCHEM?
 L9 230077 SEA FILE=HCAPLUS ABB=ON PLU=ON L7 OR ?LUMINESC?
 L10 4251 SEA FILE=HCAPLUS ABB=ON PLU=ON L8(L)L9
 L11 SEL PLU=ON L3 1- CHEM : 2 TERMS
 L12 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L11
 L13 3990 SEA FILE=HCAPLUS ABB=ON PLU=ON L12 OR L2 OR ?LUMINOPHOR?
 L14 48 SEA FILE=HCAPLUS ABB=ON PLU=ON L10 AND L13
 L15 31 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 AND (REACTION OR COURSE OR BINDING)

L16 17 SEA FILE=HCAPLUS ABB=ON PLU=ON L14 NOT L15
 L17 4995 SEA FILE=HCAPLUS ABB=ON PLU=ON L8 AND L9
 L18 56 SEA FILE=HCAPLUS ABB=ON PLU=ON L17 AND L13
 L19 8 SEA FILE=HCAPLUS ABB=ON PLU=ON L18 NOT (L15 OR L16)

=> d ibib abs hitrn l19 1-8

L19 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2003:326945 HCAPLUS
 DOCUMENT NUMBER: 139:62064
 TITLE: Coordination Properties of a Diarylaza Crown Ether
 Appended with a **Luminescent** [Ru(bipy)3]2+
 Unit
 AUTHOR(S): Charbonniere, Loiec J.; Ziessel, Raymond F.; Sams,
 Craig A.; Harriman, Anthony
 CORPORATE SOURCE: Laboratoire de Chimie Moleculaire UMR 7008 au CNRS,
 Ecole de Chimie Polymere et Materiaux, Strasbourg,
 67087, Fr.
 SOURCE: Inorganic Chemistry (2003), 42(11), 3466-3474
 CODEN: INOCAJ; ISSN: 0020-1669
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 GI



AB The [Ru(bipy)2(1)](PF6)2 (bipy refers to 2,2'-bipyridine) complex, comprising a Ru(II) tris(2,2'-bipyridine) **luminophor** covalently linked to a di[(o-triethyleneglycoxy)phenyl]amine crown ether (1 = I), was synthesized and fully characterized. The photophys. properties of this metal complex were examd. in soln. at ambient temp. **Luminescence** from the metal complex is enhanced significantly in the presence of various adventitious cations, including protons. In particular, Li+ cations bind to the crown ether, as evidenced by 1H NMR and **luminescence** spectroscopy. Cation binding serves to decrease the rate of reductive quenching of the triplet state of the metal complex, thereby increasing the extent of **luminescence**. The soln.-phase conformation of [Ru(bipy)2(1)](PF6)2, with and without encapsulated Li+, was examd. by 2-dimensional NMR and by mol. dynamics simulations.

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L19 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:834791 HCAPLUS
 DOCUMENT NUMBER: 137:289880

TITLE: Composition and methods for high-density biochip preparation for therapeutic and diagnostic application
 INVENTOR(S): Guo, Zhanjun; Zhao, Hua; Guo, Aiqin
 PATENT ASSIGNEE(S): Peop. Rep. China
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 18 pp.
 CODEN: CNXXEV
 DOCUMENT TYPE: Patent
 LANGUAGE: Chinese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1333376	A	20020130	CN 2001-121535	20010620
PRIORITY APPLN. INFO.:			CN 2001-121535	20010620

AB The biochip consists of capillary fiber carrier units (such as a or a bundle of org. or inorg. polymeric fiber, glass fiber, optical fiber, plastic optical fiber, and/or metal wire, etc.); bio-array (such as DNA probe, cDNA probe, PNA probe, mRNA, polypeptide, antigen, antibody, medicine receptor, polysaccharide agglutinin, cell, and/or tissue) fixed on or in the fiber carrier; microstructure (such as micro-pits, micro-groove, micro-slit, micro-tube, and/or micro-mesh, etc.), pattern, and region between the fiber carrier units; and labeling reagent and labeling capillary fiber (such as a or a bundle of org. or inorg. polymeric fiber, glass fiber, optical fiber, plastic optical fiber, and/or metal wire, etc.; which are coated with colored dye or **luminophor**) deposited in microstructure, pattern, and region. The bio-array and labeling reagent are stabilized with mycose (at a ratio of 1:10-30). The process comprises fixing different kinds of bio-macromols. on or in the activated capillary fiber carriers by immersion or insertion methods; knitting with the labeling capillary fibers or overlapping; forming microstructure, pattern, and region; and depositing the labeling reagent. The high-d. biochip may be used in gene sequencing, diagnosis of disease, forensic anal., drug screening, and research of life science, etc.

L19 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:578286 HCAPLUS
 DOCUMENT NUMBER: 138:92129
 TITLE: Adsorptive pressure-sensitive coatings for unsteady flow measurements
 AUTHOR(S): Teduka, Norikazu; Kameda, Masaharu; Asai, Keisuke; Amao, Yutaka; Nakakita, Kazuyuki
 CORPORATE SOURCE: Dept. of Mechanical Systems Eng., Tokyo University of Agriculture and Technology, Koganei-shi, Tokyo, 184-8588, Japan
 SOURCE: Nippon Kikai Gakkai Ronbunshu, B-hen (2002), 68(669), 1391-1399
 CODEN: NKGDD; ISSN: 0387-5016
 PUBLISHER: Nippon Kikai Gakkai
 DOCUMENT TYPE: Journal
 LANGUAGE: Japanese

AB Time response of pressure-sensitive **luminescent** coatings has been investigated theor. and exptl. The present coating consists of a thin anodized Al layer formed by electro-chem. process and **luminophores** adsorbed by chem. or phys. adsorption. The theor. anal. shows that the effective diffusion coeff. for O permeation in the anodized Al layer is up to 1 .times. 10⁻⁵ m²/s, which implies that the present coating should have the response time of the order of microseconds. Two porphyrin compds. and a ruthenium(II) complex were used as the **luminophores** and the response to a step change in pressure was studied using a pressure jump app. and a shock tube. The response time of coating with tris(4,7-diphenylphenanthroline)ruthenium(II) was >20 .mu.s and showed dependence on the anodized Al thickness, while

the response time for tetrakis-(4-carboxyphenyl)porphyrin coating was <10 .mu.s and showed independent of the Al thickness.

L19 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:123352 HCAPLUS
 DOCUMENT NUMBER: 136:163679
 TITLE: Capsules encapsulating solid particles of signal-generating organic substances and their use in in vitro bioassays for detection of target molecules in a sample
 INVENTOR(S): Trau, Dieter; Renneberg, Reinhard; Caruso, Frank; Lehmann, Matthias
 PATENT ASSIGNEE(S): 8 Sens. Biognostic A.-G., Germany
 SOURCE: PCT Int. Appl., 49 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002012888	A2	20020214	WO 2001-EP9114	20010807
WO 2002012888	A3	20020516		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, VZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10042023	A1	20020228	DE 2000-10042023	20000808
DE 10042023	C2	20030410		
AU 2001091746	A5	20020218	AU 2001-91746	20010807
EP 1309867	A2	20030514	EP 2001-971884	20010807
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				

PRIORITY APPLN. INFO.: DE 2000-10042023 A 20000808
 WO 2001-EP9114 W 20010807

AB The present invention refers to capsules encapsulating solid particles of signal-generating org. substances and carrying on the outer surface affinity mols. for specific recognition of and binding to target mois. in a sample. The invention is directed to the use of these capsules for signal prodn. in the optical, **electrochem.** or chem. detection of target mols. To obtain a signal the signal-generating org. substances are released and dissolved. A detection method and a kit are provided. Polyelectrolyte capsules encapsulating solid fluorescein diacetate particles were prepd. from poly(allylamine hydrochloride) and poly(sodium 4-styrenesulfonate) or alginic acid. Antibody was coupled to the outer surface of the capsules for use in immunoassays.

L19 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1993:178760 HCAPLUS
 DOCUMENT NUMBER: 118:178760
 TITLE: **Spectroelectrochemical** characteristics and photophysics of a series of ruthenium(II) complexes with 1,4,5,8,9,12-hexaazatriphenylene: effects of polycomplexation
 AUTHOR(S): Jacquet, Luc; Kirsch-de Mesmaeker, Andree
 CORPORATE SOURCE: Univ. Libre Bruxelles, Brussels, 1050, Belg.
 SOURCE: Journal of the Chemical Society, Faraday Transactions

(1992), 88(17), 2471-80
 CODEN: JCFTEV; ISSN: 0956-5000

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A study of the photophys. mechanisms controlling the **luminescence** lifetimes of a series of Ru2+ complexes based on the same [Ru3+-hat.bul.-]* **luminophore** (hat = 1,4,5,8,9,12-hexaazatriphenylene), and extending from monometallic building blocks to polynuclear compds., is presented, together with the relevant spectroscopic and redox data. The parameters which characterize these different mechanisms, i.e. the radiative and nonradiative deactivation rate consts. of the 3MLCT (metal to ligand charge transfer) state and the thermal activation from this state to the 3MC (metal centered) and/or to another 3MLCT state, have been detd. from the analyses of the curves obtained by plotting the lifetimes or intensities of **luminescence** as a function of temp. The math. and exptl. limitations of the anal. method have been investigated and detn. of the parameters has been improved by using a new global anal. algorithm. Interestingly the comparison of the data for the monometallic and polynuclear complexes indicates that the (Ru3+-hat.bul.-)* **luminophore**, which is common for the whole series, presents characteristics that change when the hat becomes a bridging ligand, i.e. those that depend on the vibration modes of the complex. Moreover, for these polynuclear compds., there is no contribution of the 3MC state to the mechanism of control of the **luminescence** lifetime.

L19 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1990:583676 HCAPLUS
 DOCUMENT NUMBER: 113:183676
 TITLE: Dual **luminescence** from a mixed-metal complex containing rhenium(I) and ruthenium(II) photochromophores
 AUTHOR(S): Van Wallendaal, Shawn; Rillema, D. Paul
 CORPORATE SOURCE: Dep. Chem., Univ. North Carolina, Charlotte, NC, 28223, USA
 SOURCE: Journal of the Chemical Society, Chemical Communications (1990), (16), 1081-2
 CODEN: JCCCAT; ISSN: 0022-4936

DOCUMENT TYPE: Journal
 LANGUAGE: English

AB [(Bpy)2Ru(bpyen)Re(CO)3(py)(PF6)3 [bpy = 2,2'-bipyridine; bpyen = 1,2-bis(4'-methyl-2,2'-bipyridyl-4-yl)ethane] was prepd. by reaction of Re(bpyen)(CO)3Cl with [Ru(bpy)2(MeOH)](PF6)2 followed by AgPF6 and pyridine. The cation **luminesces** at 540 and 610 nm in CH2Cl2 at room temp. The **luminescence** at 540 nm is derived from the Re **luminophore** component and that at 610 nm from the Ru **luminophore** component.

L19 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1982:134917 HCAPLUS
 DOCUMENT NUMBER: 96:134917
 TITLE: Amperometric determination of lanthanum using N-(m-nitrocinnamoyl)phenylhydroxylamine
 AUTHOR(S): Oliferenko, G. L.; Gallai, Z. A.; Sheina, N. M.; Svediene, N.
 CORPORATE SOURCE: M. V. Lomonosov Moscow State Univ., Moscow, USSR
 SOURCE: Zhurnal Analiticheskoi Khimii (1981), 36(12), 2330-4
 CODEN: ZAKHA8; ISSN: 0044-4502

DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB N-(m-Nitrocinnamoyl)phenylhydroxylamine (I), a new reagent in the class of unsatd. hydroxamic acids, was synthesized; its pK is 7.7 +/- 0.03, and its **electrochem.** oxidn. at a rotating graphite microelectrode

was investigated. I reacts with La to form a slightly sol. compd. with a metal:reagent ratio of 1:3 at pH 7.1. The compd. soly. under titrn. conditions is 9 .times. 10-6 M. The La(III) detection limit is 4 .mu.g/mL. Amperometric detn. of La in **luminophors** with the formula La2BaOxSy.Eu (3-5%) was demonstrated.

L19 ANSWER (8) OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1967:109930 HCAPLUS

DOCUMENT NUMBER: 66:109930

TITLE: Light output of powdered **electroluminophors** and its dependence on the grain size composition

AUTHOR(S): Chukova, Yu. P.

SOURCE: Optika i Spektroskopiya (1967), 22(3), 450-5

CODEN: OPSPAM; ISSN: 0030-4034

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The energy absorption and light output of ZnS **luminophors** are examd. An empirical dependence of the light output on the external potential yields data that agree well with expts. for a wide range of potentials (50-1000 v.). The dependence of the absorbed energy on the effective size of the ZnS grains is investigated for 3 types of distribution of the absorbing barriers: const. barrier d. per vol., per surface, and fixed no. of barriers per particle. The calcd. data are compared with exptl. (Lehmann, **Electrochem. Soc.** 105, 585(1958)), revealing that the barrier no. is const. for ZnS crystals of similar sizes. The character of the distribution of energy-absorbing barriers is markedly analogous to that of the distribution of radiating barriers.


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=> d stat que
L2      13 SEA FILE=REGISTRY ABB=ON  PLU=ON  LUMINOPHOR/BI
L3      1 SEA FILE=REGISTRY ABB=ON  PLU=ON  LUMINOPHORE/BI
L11     SEL  PLU=ON  L3 1-  CHEM :      2 TERMS
L12     1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11
L13     3990 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12 OR L2 OR ?LUMINOPHOR?
L21     8 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND ((BIND? OR RATE) (2A)RE
      ACTION OR TIME(W)COURSE)
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=>

=> d ibib abs hitrn l21 1-8

L21 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2003:439004 HCAPLUS
 DOCUMENT NUMBER: 139:164872
 TITLE: Syntheses and Characterization of Upper Rim 1,2- and 1,3-Diphosphinated Calix[4]arenes and Their Corresponding 1,5-Cyclooctadienylrhodium(I) Complexes: Comparison of the Catalytic Hydroformylation Properties of Terminal Alkenes
 AUTHOR(S): Plourde, Francois; Gilbert, Karine; Gagnon, Jonathan; Harvey, Pierre D.
 CORPORATE SOURCE: Departement de Chimie, Universite de Sherbrooke, Sherbrooke, QC, J1K 2R1, Can.
 SOURCE: Organometallics (2003), 22(14), 2862-2875
 CODEN: ORGND7; ISSN: 0276-7333
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Rhodium and iridium dimeric cyclooctadiene complexes with calix[4]arene upper rim diphosphines were prep'd., characterized and tested for hydroformylation activity. The 5,11- (9a,b) and 5,17-bis(dialkylphosphino)-25,26,27,28-tetra-n-propoxycalix[4]arene (5a,b) ligands (a, alkyl = Me; b, iPr) were prep'd. and coordinated to Rh(COD)+ fragments (COD = 1,5-cyclooctadiene). The ligands 5,17-bis(diphenylphosphino)-11,23-dibromo-25,26,27,28-tetra-n-propoxycalix[4]arene (5c) and 5,11-bis(diphenylphosphino)-25,26,27,28-tetra-n-propoxycalix[4]arene (9c) were coordinated to M(COD)+ (M = Rh, Ir) and RhCl(CO) fragments, as well. On the basis of mass spectrometry and 31P NMR spin-lattice relaxation time measurements (T1), all of the complexes are found to be dimers. Mol. modeling provides evidence that ring stress favors the dimer over the monomer, and the modeled structures for both 5,11- and 5,17-isomers were corroborated by the comparison of the photophysics of the [5c.cntdot.Ir(COD)][PF6]2 (14) species at 77 K. The decrease in emission lifetimes of the P2Ir(C:C)2+ luminophor in the presence of 1-hexene is more pronounced for the 5,17-isomer, indicating reduced steric hindrance about the metallic center. The catalytic hydroformylation of 1-hexene, styrene and vinyl esters alkenes using [LRh(COD)]22+ catalyst precursors (L = 5a-c, 9a-c) was tested under various conditions. The basicity and the cone angle of the phosphines had an impact on the n/iso ratios of the resulting aldehydes. The turnover frequencies (tof's) are generally larger for the 5,11-series for 1-hexene, but depend on the nature of the phosphine for styrene, vinyl acetate, vinyl benzoate, and vinyl p-tert-butylbenzoate.
 REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2000:268364 HCAPLUS

DOCUMENT NUMBER: 133:55520
 TITLE: Indole-3-pyruvic and -propionic acids, kynurenic acid, and related metabolites as **luminophors** and free-radical scavengers
 AUTHOR(S): Hardeland, R.; Zsizsik, B. K.; Poeggeler, B.; Fuhrberg, B.; Holst, S.; Coto-Montes, A.
 CORPORATE SOURCE: Institut fur Zoologie und Anthropologie, Universitat Gottingen, Gottingen, D-37073, Germany
 SOURCE: Advances in Experimental Medicine and Biology (1999), 467(Tryptophan, Serotonin and Melatonin), 389-395
 CODEN: AEMBAP; ISSN: 0065-2598
 PUBLISHER: Kluwer Academic/Plenum Publishers
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Chemiluminescence assocd. with oxidn. by free radicals was investigated in an alk., hemin-catalyzed hydrogen peroxide system, using the following tryptophan metabolites as radical scavengers: indole-3-pyruvic, indole-3-propionic, kynurenic, xanthurenic and quinaldic acids and 4-hydroxy-quinoline. Light emission from oxidn. of the indolic compds. was only partially inhibited by the hydroxyl-radical scavenger DMSO, but strongly suppressed by the superoxide-anion scavenger Tiron, whereas chemiluminescence generated from kynurenic acid was strongly inhibited by either of these compds. Light emission from oxidn. of kynurenic acid lasts for a surprisingly long period of time: At 0.4 mM and 20.degree.C, luminescence increased for 5 h and continued at a high rate for more than a day. Comparison of structural analogs indicated that the 4-hydroxyl and carboxyl groups of kynurenic acid are essential for effective light emission, and that an addnl. 8-hydroxyl residue leading to an intramol. hydrogen bond diminishes the **reaction rate**.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:464529 HCAPLUS

DOCUMENT NUMBER: 125:109657

TITLE: Rate measurements of biomolecular reactions using electrochemiluminescence

INVENTOR(S): Nacamulli, Laurette; Leland, Jonathan K.; Hayes, Stephanie A.

PATENT ASSIGNEE(S): Igen, Inc., USA

SOURCE: PCT Int. Appl., 55 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9617248	A1	19960606	WO 1995-US15982	19951204
W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 5527710	A	19960618	US 1994-347984	19941202
CA 2206335	AA	19960606	CA 1995-2206335	19951204
AU 9645966	A1	19960619	AU 1996-45966	19951204
AU 711459	B2	19991014		
JP 10508104	T2	19980804	JP 1995-519172	19951204
EP 871891	A1	19981021	EP 1995-944075	19951204

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE
 PRIORITY APPLN. INFO.: US 1994-347984 19941202
 WO 1995-US15982 19951204

AB A biomol. reaction, such as an enzymic or affinity **binding reaction**, is effected in an electrochem. cell with a mixt. of reagents including a **luminophor** which will relate the concn. of a reactant, a reaction partner, or the reaction product of a reaction partner to the electrochemiluminescent intensity to det. the rate of the biomol. reaction. The reaction partner is a reagent which reacts with the reactant and which itself or its reaction product participates with the **luminophor** to cause ECL emissions. The ECL intensity is modulated with a series of elec. pulses which are applied to the mixt. of reagents at a preselected potential for preselected intervals of time and duration. The intensity is measured during those intervals to provide a timed series of values (P). The same expt. is repeated twice more, once wherein the modulation is conducted after the reaction has gone to completion to obtain the timed series of values (C), and the last time the reaction is performed in the absence of the reaction partner to obtain the timed series of values (B). The results are normalized (N) using the formula $N = (P - B)/(C - B)$ to obtain a series of values (N) which are plotted to obtain the **time course** of reaction.

L21 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1996:260414 HCAPLUS
 DOCUMENT NUMBER: 124:336707
 TITLE: Initiation of degenerate-branched chain reaction of glycine deamination with ultraweak UV irradiation or hydrogen peroxide
 AUTHOR(S): Voeikov, V. L.; Baskakov, I. V.; Kafkalias, K.; Naletov, V. I.
 CORPORATE SOURCE: Moscow State Univ., Biological Fac., Moscow, 119899, Russia
 SOURCE: Bioorganicheskaya Khimiya (1996), 22(1), 39-47
 CODEN: BIKHD7; ISSN: 0132-3423
 PUBLISHER: MAIK Nauka
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB Short irradiation of an aq. soln. of glycine by an ultraweak source of UV photons initiates a process accompanied by the accumulation of ammonium ions. More intense deamination occurs in an aq. soln. of glycine in the presence of H₂O₂. The kinetics of the ammonia formation coincides with the kinetics of enhancement of luminescence, which was registered in the presence of a **luminophor**, ethidium bromide or tyrosine. When the process is completed, less than 5% glycine is consumed. At the initial step of the reaction, the concn. of H₂O₂ in the soln. increases significantly in comparison with the starting concn. but then begins to decrease. If the **luminophor** concn. exceeds the optimum, the **reaction rate** enhancement decelerates and the ammonia yield decreases. UV photons and H₂O₂ are assumed to initiate the degenerate-branched chain reaction of glycine deamination.

L21 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1994:252237 HCAPLUS
 DOCUMENT NUMBER: 120:252237
 TITLE: Photoassisted oxidation of formaldehyde in **luminophore**-grade CdS-Pt suspensions
 AUTHOR(S): Bamwenda, Gratian; Mika, Alicja M.; Winnicki, Tomasz Z.
 CORPORATE SOURCE: Inst. Environ. Prot. Eng., Tech. Univ. Wroclaw, Wroclaw, 50-370, Pol.
 SOURCE: Environment Protection Engineering (1992), Volume Date 1990, 16(2), 67-73
 CODEN: EPEND9; ISSN: 0324-8828

DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Photoassisted oxidn. of HCHO in aq. solns. with a simultaneous evolution of mol. H was studied in platinized **luminophore**-grade CdS suspensions. The course of the reaction depended on illumination time, amt. of Pt deposited onto CdS surface, and HCHO soln. pH. The apparent first-order **reaction rate** const. was 1.48 .times. 10-4/min.

L21 ANSWER (6) OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1981:626405 HCAPLUS
 DOCUMENT NUMBER: 95:226405
 TITLE: Effect of zinc oxide nonstoichiometry on the kinetics of the formation of a manganese-activated zinc silicate (Zn₂SiO₄:Mn) **luminophor**
 AUTHOR(S): Korablev, N. M.; Gavrilov, V. V.; Semin, E. G.; Vagina, T. Sh.; Vinnikova, V. I.
 CORPORATE SOURCE: USSR
 SOURCE: Sbornik Nauchnykh Trudov - Vsesoyuznyi Nauchno-Issledovatel'skii Institut Lyuminoforov i Osobo Chistykh Veshchestv (1979), 18, 45-9
 CODEN: SNVNAR; ISSN: 0371-1722

DOCUMENT TYPE: Journal
 LANGUAGE: Russian
 AB The effect of ZnO nonstoichiometry on the rate of formation of a Zn₂SiO₄ phosphor by reaction of ZnO with SiO₂ in the presence of a Mn activator was studied x-ray diffractometry, luminescence spectroscopy and ESR. The **rate of reaction** and its completeness increase as the no. of vacancies in the initial ZnO increases. The limiting reaction step is the formation of a (Zn,Mn)₂SiO₄ solid soln.

L21 ANSWER (7) OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1978:431496 HCAPLUS
 DOCUMENT NUMBER: 89:31496
 TITLE: Surface reduction of zinc sulfide and oxide by atomic hydrogen (luminescence study)
 AUTHOR(S): Styrov, V. V.; Izmailov, Sh. L.; Sokolov, V. A.
 CORPORATE SOURCE: Tomsk. Inst. Avtom. Sist. Upr. Radioelektron., Tomsk, USSR
 SOURCE: Tezisy Dokl. - Soveshch. Kinet. Mekh. Khim. Reakts. Tverd. Tele, 7th (1977), Volume 3, 99-102. Editor(s): Lyakhov, N. Z. Akad. Nauk SSSR, Sib. Otd., Inst. Fiz.-Khim. Osn. Pererab. Miner. Syr'ya: Novosibirsk, USSR.
 CODEN: 37UOAU

DOCUMENT TYPE: Conference
 LANGUAGE: Russian
 AB A new sensitive method for detg. the kinetics of reactions at the gas-solid interface was proposed and tested on the redn. of ZnS (with **luminophores** Cu, Co, Cl, Mn) and ZnO with at. H. It is based on the detn. of radical-recombination luminescence spectra of the surface during its interaction with at. gases. The method is also suitable for studying lattice defects of the surface.

L21 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1977:497776 HCAPLUS
 DOCUMENT NUMBER: 87:97776
 TITLE: Modeling of neural mechanisms in the electrochemiluminescent cells. Communication I
 AUTHOR(S): Leonov, V. P.
 CORPORATE SOURCE: USSR
 SOURCE: Problemy Bioniki (1976), 16, 99-104
 CODEN: PBNKAV; ISSN: 0555-2656

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Electrochemiluminescent cells (electrochem. cells contg. **luminophores** in their electrolyte solns.) were analyzed as possible models for synaptic excitation, inhibition, adaptation, and summation. In electrochem. cells contg. 1,5-diphenyl-3-styrylpyrazoline (I), luminescence (synaptic excitation) was obsd. when a I-cation radical reacted with a I-anion radical to form a luminescent excited mol. or when a 2nd electron was transferred to the I-cation radical. The anodic reaction representing the presynaptic input can be used to model summation (facilitation) with the rate of the reaction modeling spatial summation and the life-time of the I-cation radical modeling temporal summation. Control of the rate of the cathodic reaction mimics adaptation. In electrochem. cells contg. Na tétraphénylborate plus triphenylimidazole, 1,5-diphenyl-3-(p-chlorophenyl)pyrazoline, or dibenzyl, electrochemiluminescence was obsd. as the result of the formation of exciplexes between the tétraphénylborate anion and the cation radicals of the other compds. This system can mimic the same synaptic mechanism as the system contg. I. In addn., if a neg. impulse is applied to the synaptic electrode of this 2nd system before the pos. impulse, luminescence is inhibited. Thus, synaptic inhibition can also be modeled in this system.

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L1	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	ELECTROCHEM/BI
L2	13	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHOR/BI
L3	1	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINOPHORE/BI
L7	13142	SEA	FILE=REGISTRY	ABB=ON	PLU=ON	LUMINESC?
L8	275185	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L1 OR ?ELECTROCHEM?
L9	230077	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L7 OR ?LUMINESC?
L10	4251	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L8(L)L9
L11		SEL	PLU=ON	L3 1-	CHEM :	2 TERMS
L12	1	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L11
L13	3990	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L12 OR L2 OR ?LUMINOPHOR?
L14	48	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L10 AND L13
L15	31	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L14 AND (REACTION OR COURSE
						OR BINDING)
L16	17	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L14 NOT L15
L21	8	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L13 AND ((BIND? OR RATE) (2A)RE
						ACTION OR TIME(W)COURSE)
L22	44	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L8 (L) (?MODULAT?(5A)SIGNAL)
L23	44	SEA	FILE=HCAPLUS	ABB=ON	PLU=ON	L22 NOT (L15 OR L16 OR L21)

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L23 ANSWER 1 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2003:640487 HCAPLUS
 TITLE: Spectroelectrochemical sensing: planar waveguides
 AUTHOR(S): Ross, Susan E.; Shi, Yining; Seliskar, Carl J.;
 Heineman, William R.
 CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, PO
 Box 210172, Cincinnati, OH, 45221-0172, USA
 SOURCE: Electrochimica Acta (2003), 48(20-22), 3313-3323
 CODEN: ELCAAV; ISSN: 0013-4686

PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The **spectroelectrochem.** sensor combines in a single device **electrochem.**, spectroscopy, and selective partitioning into a film, giving improved selectivity for applications that involve complex samples. Sensing is based on the change in optical **signal** that accompanies **electrochem. modulation** of analyte that has partitioned into the film. Two classes of optical quality chem.-selective films based on two different host materials, namely, sol-gel processed silica and cross-linked poly(vinyl alc.) have been developed. Films are typically 400-700 nm thick. Three types of sensor platforms are discussed: a multiple internal reflection (MIR) optic consisting of a bilayer of an indium tin oxide (ITO) optically transparent electrode deposited on a 1-mm thick glass substrate, a planar waveguide in which a potassium ion-exchanged BK7 glass waveguide (5-9 .mu.m thick) was over-coated with a thin film of ITO, and a planar waveguide in which a potassium ion-exchanged BK7 glass waveguide channel was formed and a pair of electrodes deposited along side the channel. These sensors were evaluated with ferrocyanide and a selective film of PDMDAAC-SiO₂, where PDMDAAC=poly(di-Me diallylammonium chloride).

L23 ANSWER (2) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2003:629681 HCAPLUS
 TITLE: Studies of the influence of optical effects on spectroelectrochemical sensor's performance
 AUTHOR(S): Piruska, Aigars; Zudans, Imants; Seliskar, C. J.; Heineman, W. R.
 CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221, USA
 SOURCE: Abstracts of Papers, 226th ACS National Meeting, New York, NY, United States, September 7-11, 2003 (2003), ANYL-019. American Chemical Society: Washington, D. C.
 CODEN: 69EKY9
 DOCUMENT TYPE: Conference; Meeting Abstract
 LANGUAGE: English

AB The **spectroelectrochem.** sensor represents an internal reflection element coated with a thin optically transparent electrode and a chem. selective film. The anal. **signal** of the sensor is the **modulation** of light intensity at the chosen wavelength due to reversible **electrochem.** cycling of the analyte from absorbing to non-absorbing form in to the film. Light propagation in thin films was studied to elucidate influence of purely optical effects on reflectance spectrum. Under certain conditions light interference in film can be satisfied and enhanced absorbance obsd. An absorbance band distortion in the sensors configuration was studied theor. and exptl. Theor. studies were performed using ray optics approach on a model system, that consists of an absorbing film described by a Lorentz oscillator enclosed between semi-infinite, non-absorbing media. Tris(2,2'-bipyridyl) ruthenium(II) chloride uptake in Nafion film have been used as a model system for the exptl. studies.

L23 ANSWER (3) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2003:466034 HCAPLUS
 DOCUMENT NUMBER: 139:171929
 TITLE: Photoacoustic and photoelectrochemical current response of nanostructured TiO₂ electrodes
 AUTHOR(S): Toyoda, Taro; Hayashi, Masashi; Shen, Qing
 CORPORATE SOURCE: Department of Applied Physics and Chemistry, The University of Electro-Communications, Tokyo, 182-8585, Japan
 SOURCE: Japanese Journal of Applied Physics, Part 1: Regular

Papers, Short Notes & Review Papers (2003), 42(5B),
3036-3040
CODEN: JAPNDE

PUBLISHER: Japan Society of Applied Physics
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors report the effect of voltage in a concd. KCl electrolyte applied to nanostructured TiO₂ electrodes during their final prepn. processes on photoacoustic (PA) and **photoelectrochem.** (PEC) current spectra and their modulation frequency dependence to clarify their response characteristics. The PA signal intensities of the TiO₂ electrodes with different applied voltage treatments are higher than that without the treatments below the fundamental absorption edge. These results suggest an inner-band transition due to an increase in carrier concn. owing to donor levels formed by partially reduced Ti ions (Ti⁴⁺ → Ti³⁺) following the applied voltage treatments. The PEC spectra for the applied voltage treatments >-1.5 V show broad bands at .apprx.3.3 and 3.8 eV. The intensities of all peaks increase rapidly at an applied voltage >-1.5 V, which is similar to that of the PA intensity at a photon energy of 2.0 eV. The increase in the PEC intensity with different applied voltage treatments implies an increase in carrier concn. due to donor level formation by the treatments. The **modulation** frequency dependence of the PA **signal** intensity is related to the applied voltage treatments below a frequency of 60 Hz. This indicates the increase in the interfacial thermal resistance to prevent heat diffusion at the interface between the nanostructured TiO₂ film and the Ti substrate with the increase in applied voltage. The modulation frequency dependence of PEC current also depends on the applied voltage treatments, indicating the enhancement of the photoexcited electron diffusion response with the increase in applied voltage.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 4 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2003:389038 HCAPLUS
DOCUMENT NUMBER: 139:110589
TITLE: Kinetics of oxygen exchange in Sr(Ti_{0.65}Fe_{0.35})O₃
AUTHOR(S): Schneider, Th.; Wagner, S. F.; Menesklou, W.;
Ivers-Tiffée, E.
CORPORATE SOURCE: Institut für Werkstoffe der Elektrotechnik,
Universität Karlsruhe (TH), Karlsruhe, 76128, Germany
SOURCE: Materials Research Society Symposium Proceedings
(2003), 756(Solid State Ionics--2002), 145-150
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Current limiting **electrochem.** pumping cells (amperometric sensors) based on zirconia are commonly used for engine control applications. Fast resistive-type sensors adapted from semiconducting metal oxides are a promising alternative for future exhaust gas monitoring systems. Therefore among the interesting characteristics of the materials system Sr(Ti_{0.65}Fe_{0.35})O₃, including high sensitivity and temp. independence at high oxygen partial pressures (pO₂ > 10⁻⁴ bar), a short response time (t₉₀ = 30 ms) is obviously the most salient. The latter is detd. by the kinetics of the oxygen surface transfer and subsequent diffusion of oxygen vacancies V_o. For thin samples and low temps. the surface transfer is dominant, since bulk diffusion usually occurs very fast. The presented model is based on the frequency-domain anal. of amplitude and phase shift of the response **signal** obtained from a pO₂ **modulation** in a fast kinetic measurement setup. This method allows both the measurement of response times in the sub-millisecond range as well as the distinction of the behavior either controlled by vol.

diffusion or by surface transfer reaction in $\text{Sr}(\text{Ti}_{0.65}\text{Fe}_{0.35})\text{O}_3$ ceramics.
 REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 5 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2003:50412 HCAPLUS
 DOCUMENT NUMBER: 138:194073
 TITLE: Dependence of thermal conductivity of porous silicon
 on porosity characterized by photoacoustic technique
 AUTHOR(S): Shen, Qing; Toyoda, Taro
 CORPORATE SOURCE: Department of Applied Physics and Chemistry, The
 University of Electro-Communications, Tokyo, 182-8585,
 Japan
 SOURCE: Review of Scientific Instruments (2003), 74(1, Pt. 2),
 601-603
 CODEN: RSINAK; ISSN: 0034-6748
 PUBLISHER: American Institute of Physics
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB We have applied a photoacoustic (PA) technique to study the thermal
 properties of porous silicon (PS) films formed on p-type Si substrates by
electrochem. anodic etching with greatly different porosities
 (20-60%). From the dependence of the PA **signals** on the
modulation frequency of excitation light measured under a
 transmission detection configuration, the effective thermal diffusivities
 for the two-layer PS on Si samples were detd. Using a two-layer model,
 the thermal cond. of the PS films was evaluated and found to decrease
 greatly as the porosity is larger than 30%, which was two or three orders
 of magnitude lower than that reported for monocryst. silicon. The results
 demonstrate that the thermal cond. of PS films depends strongly on its
 structure.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 6 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:825886 HCAPLUS
 DOCUMENT NUMBER: 138:65644
 TITLE: Spectroelectrochemical sensing based on multimode
 selectivity simultaneously achievable in a single
 device. 12. Characterization of a channel waveguide
 sensor
 AUTHOR(S): Ross, Susan E.; Seliskar, Carl J.; Heineman, William
 R.; Aryol, Saroj; Nevin, Joseph H.
 CORPORATE SOURCE: Department of Chemistry, University of Cincinnati,
 Cincinnati, OH, 45221, USA
 SOURCE: Proceedings - Electrochemical Society (2001),
 2001-18 (Chemical and Biological Sensors and Analytical
 Methods II), 499-510
 CODEN: PESODO; ISSN: 0161-6374
 PUBLISHER: Electrochemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Incorporation of planar channel waveguide technol. into a
spectroelectrochem. sensor is described. In this sensor design, a
 potassium ion-exchanged BK7 glass channel waveguide was made by
 established photolithog. techniques. A pair of electrodes was placed
 along side the channel in a buss-bar configuration. A chem.-selective
 film was then spin-coated into the channel. Sensing was based on the
 change in attenuation of light propagated through the channel waveguide
 resulting from an optically absorbing analyte (ferricyanide-ferrocyanide
 couple) in the selective film. By applying either a triangular or square
 wave excitation potential waveform, **electromodulation** of the
 optical **signal** was demonstrated with $\text{Fe}(\text{CN})_6^{3-/-4}$ as a model

electroactive couple that partitions into a PDMDAAC-SiO₂ film {where PDMDAAC = poly(dimethyldiallylammonium chloride)} and absorbs at 442 nm.
 REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 7 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:788065 HCAPLUS
 DOCUMENT NUMBER: 138:115567
 TITLE: Characterization of thermal properties of porous silicon film/silicon using photoacoustic technique
 AUTHOR(S): Shen, Q.; Toyoda, T.
 CORPORATE SOURCE: Department of Applied Physics and Chemistry, The University of Electro-Communications, Chofu, Tokyo, 182-8585, Japan
 SOURCE: Journal of Thermal Analysis and Calorimetry (2002), 69(3), 1067-1073
 CODEN: JTACF7; ISSN: 1418-2874
 PUBLISHER: Kluwer Academic Publishers
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB We have applied photoacoustic (PA) technique to study the thermal properties of porous silicon (PS) films formed on p-type Si substrates by **electrochem.** anodic etching. Four PS samples with close thicknesses but greatly different porosities (from 20 to 60%) were examd. From the dependences of the PA **signals** on the **modulation** frequency of excitation light measured under a transmission detection configuration (TDC), effective thermal diffusivities for the two-layered PS/Si samples were detd. and found to decrease greatly from 0.095 to 0.020 cm² s⁻¹ as the porosity increased from 20 to 60%.
 REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 8 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 2002:641138 HCAPLUS
 DOCUMENT NUMBER: 139:12411
 TITLE: A "virtual" electroanalytical instrument for square wave voltammetry
 AUTHOR(S): Economou, A.; Bolis, S. D.; Efstathiou, C. E.; Volikakis, G. J.
 CORPORATE SOURCE: Department of Chemistry, Laboratory of Analytical Chemistry, Aristotle University of Thessaloniki, Thessaloniki, 540 06, Greece
 SOURCE: Analytica Chimica Acta (2002), 467(1-2), 179-188
 CODEN: ACACAM; ISSN: 0003-2670
 PUBLISHER: Elsevier Science B.V.
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB In this work we report the design, construction, control and applications of a computerized portable analyzer suitable for anal. square wave (SW) voltammetry. The analyzer is based on a home-made miniature potentiostat powered by two 9 V batteries. The **electrochem.** control program, developed in LabVIEW 5.1, generated the SW **modulation signal**, scanned the potential of the working electrode, acquired the current and displayed the results in the form of a voltammogram. Suitable programs were also developed in LabVIEW 5.1 for expts. involving preconcn. and for computer-assisted optimization of the instrumental parameters. The small dimensions, battery operation and inexpensive electronic components make this **electrochem.** analyzer ideal for in situ or field measurements. The utility of the instrument was assessed for different variants of SW voltammetry (direct SW voltammetry, anodic SW stripping voltammetry, cathodic SW stripping voltammetry, adsorptive SW stripping voltammetry, enrichment SW voltammetry) on different electrodes and applied to the detn. of riboflavin in multivitamin tablets.

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 9 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:801175 HCAPLUS

DOCUMENT NUMBER: 134:63182

TITLE: Influence of electrolyte movement on measured electrochemical noise

AUTHOR(S): Legat, A.

CORPORATE SOURCE: Slovenian National Building and Civil Engineering Institute, Ljubljana, 1000, Slovenia

SOURCE: Corrosion (Houston) (2000), 56(11), 1086-1092
CODEN: CORRAK; ISSN: 0010-9312

PUBLISHER: NACE International

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The influence of movement of soln. on the characteristics of measured **electrochem.** noise (EN) was studied. For this reason, measurements were performed in still soln., as well as in movement of the electrolyte. To relate measured EN to the development of corrosion processes, digitized images of electrodes were recorded continuously during these measurements. The characteristics of EN, in general, change significantly with strong movement of the soln.: stirring or laminar flow. Results of this study confirmed that the main source for this change is transformation of corrosion processes: in a still soln., the corrosion process tends to be localized, whereas during strong movement of the electrolyte, this tendency is oriented toward uniform corrosion. The direct effect of the electrolyte movement on measured EN (**modulation of signals** caused by spatiotemporal flow disturbances) is small.

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 10 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:742444 HCAPLUS

DOCUMENT NUMBER: 133:358625

TITLE: Spectroelectrochemical Sensing Based on Multimode Selectivity Simultaneously Achievable in a Single Device. 9. Incorporation of Planar Waveguide Technology

AUTHOR(S): Ross, Susan E.; Seliskar, Carl J.; Heineman, William R.

CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221-0172, USA

SOURCE: Analytical Chemistry (2000), 72(22), 5549-5555
CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Incorporation of planar waveguide technol. into a **spectroelectrochem.** sensor is described. In this sensor design, a potassium ion-exchanged BK7 glass waveguide was over-coated with a thin film of indium tin oxide (ITO) that served as an optically transparent electrode. A chem. selective film was spin-coated on top of the ITO film. The sensor supported five optical modes at 442 nm and three at 633 nm. Investigations on the impact of the ITO film on the optical properties of the waveguide and on the **spectroelectrochem.** performance of the sensor are reported. Sensing was based on the change in attenuation of light propagated through the waveguide resulting from an optically absorbing analyte. By applying either a triangular or square wave excitation potential waveform, **electromodulation** of the optical **signal** was demonstrated with Fe(CN)₆^{3-/4-} as a model electroactive couple that partitions into a PDMDAAC-SiO₂ film {where PDMDAAC =

poly(dimethyldiallylammonium chloride)} and absorbs at 442 nm.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 11 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2000:646852 HCAPLUS

DOCUMENT NUMBER: 133:314914

TITLE: Electrochemical and electrochemically modulated reflectance AC voltammetry studies of electron transfer kinetics between attached redox centers and a mirror gold electrode

AUTHOR(S): Brevnov, Dmitri A.; Finklea, Harry O.

CORPORATE SOURCE: Department of Chemistry, West Virginia University, Morgantown, WV, 26506, USA

SOURCE: Journal of the Electrochemical Society (2000), 147(9), 3461-3466

CODEN: JESOAN; ISSN: 0013-4651

PUBLISHER: Electrochemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Small amplitude **electrochem.** a.c. voltammetry (ACV) is employed to study kinetics of electron transfer between Ru redox centers attached to the electrode surface via C10 alkanethiols and gold mirror electrodes. The equations for faradaic admittance of strongly adsorbed electroactive species in the case of a Langmuir isotherm are applied to det. the total coverage of redox centers (.theta.total) and kinetic parameters: the std. rate const. (ks) and transfer coeff. The ks appears to increase and .theta.total appears to decrease as the perturbation frequency increases: in a sep. expt., large amplitude ACV was performed simultaneously with **electrochem.** modulated reflectance a.c. voltammetry (EMR ACV) on the same electroactive monolayer/electrode system. The electromodulation reflectance coeff. (X) is defined in the frequency domain as a ratio of a.c. electroreflectance to both d.c. electroreflectance and the interfacial a.c. potential (Einter). The X is a more useful quantity than the ratio of a.c. electroreflectance to d.c. electroreflectance for representation of the electroreflectance data. The X is exactly out-of-phase with the faradaic admittance at the wavelength region (410-440 nm) corresponding to the absorption band of the reduced form of the Ru complex. Therefore, the a.c. electroreflectance **signal** is dominated by the **modulation** of the electrode coverage of a given redox state with Einter. Electrochromic effects are negligible. Accurate calcn. of ks from EMR ACV data is complicated because of the nonlinear relation between the faradaic a.c. current and large amplitude Einter. Thus, under the authors' exptl. conditions, ACV is the preferred method to det. ks.

REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 12 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:805690 HCAPLUS

DOCUMENT NUMBER: 132:95725

TITLE: Influence of palladium films on hydrogen gas entry into iron: a study by electrochemical impedance spectroscopy

AUTHOR(S): Bruzzoni, P.; Carranza, R. M.; Lacoste, J. R. Collet

CORPORATE SOURCE: Comision Nacional de Energia Atomica, Buenos Aires, 1429, Argent.

SOURCE: International Journal of Hydrogen Energy (1999), Volume Date 2000, 25(1), 61-65

CODEN: IJHEDX; ISSN: 0360-3199

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Covering the bare surface of a hydride forming metallic material with a thin film of Pd is a method to accelerate hydriding, through avoiding the formation of a passive oxide film and allowing hydrogen to diffuse easily through the Pd film. We performed permeation expts. to study the hydrogen ingress rate into Pd-plated iron membranes. The exptl. conditions are such that the Pd deposits and their interfaces (rather than the bulk iron substrate) det. the permeation results. Thus, it is possible to characterize the Pd film behavior with respect to the passage of hydrogen. We used the **electrochem.** impedance spectroscopy technique, where the excitation **signal** was a **modulated** hydrogen pressure, and the response **signal** was the **modulated** hydrogen flux, measured by an **electrochem.** method at the exit side of the permeation membrane.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 13 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1999:559312 HCAPLUS
 DOCUMENT NUMBER: 131:266213
 TITLE: Development of new spectroelectrochemical waveguide sensors
 AUTHOR(S): Ross, Susan E.; Seliskar, Carl J.; Heineman, William R.
 CORPORATE SOURCE: Dept. of Chemistry, University of Cincinnati, Cincinnati, OH, 45221-0172, USA
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1999), 40(2), 1265-1266
 CODEN: ACPAY; ISSN: 0032-3934
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The authors describe the combination of a new sensor concept employing 3 modes of selectivity and a novel **spectroelectrochem.** sensor design based on planar waveguide technol. The **modulated** optical **signal** correlated to the **electrochem.** in the chem.-selective film and that the film was crucial in preconcg. sufficient amt. of analyte near the waveguide surface for detection. Optical detection employing the simultaneous trimodal selectivity concept was achieved with an integrated optical waveguide. By optimizing the film deposition and optical coupling, sensitivity and detection limits should be significantly improved.

REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 14 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1999:539684 HCAPLUS
 TITLE: Strategies for achieving selectivity in chemical sensors.
 AUTHOR(S): Heineman, William R.; Halsall, H. Brian; Seliskar, Carl J.
 CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221-0172, USA
 SOURCE: Book of Abstracts, 218th ACS National Meeting, New Orleans, Aug. 22-26 (1999), ANYL-120. American Chemical Society: Washington, D. C.
 CODEN: 67ZJA5
 DOCUMENT TYPE: Conference; Meeting Abstract
 LANGUAGE: English

AB Examples of strategies we have used for the development of new chem. sensors will be discussed. The emphasis will be on achieving adequate selectivity for sensing in complex samples. One example is **electrochem.** immunoassay based on labels that are electroactive or

catalyze the prodn. of an electroactive product. A microcapillary immunoreactor with **electrochem.** detection has led to the achievement of detection limits as low as the zeptomole range. This concept is being extended to the development of an **electrochem.** immunosensor on a single microchip. A sensor for in vivo monitoring of a heart imaging agent for nuclear medicine is a second example that illustrates how detection limit and selectivity can be improved with polymer-modified electrodes. A sensor has been developed for in vivo monitoring the prototype heart imaging agent Re(DMPE), where DMPE.ident.1,2-bis(dimethyl-phosphino)ethane. A third example is a sensor that provides three levels of selectivity by the combination of selective partitioning into a film with monitoring of an optical **signal** that is **electrochem. modulated.**

L23 ANSWER **15** OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:99774 HCAPLUS

DOCUMENT NUMBER: 130:262507

TITLE: Age-related changes in the capacity, rate, and modulation of dopamine uptake within the striatum and nucleus accumbens of Fischer 344 rats: an in vivo electrochemical study

AUTHOR(S): Hebert, Meleik A.; Gerhardt, Greg A.

CORPORATE SOURCE: Neuroscience Training Program, Rocky Mountain Center for Sensor Technology, University of Colorado Health Sciences Center, Denver, CO, USA

SOURCE: Journal of Pharmacology and Experimental Therapeutics (1999), 288(2), 879-887

CODEN: JPETAB; ISSN: 0022-3565

PUBLISHER: American Society for Pharmacology and Experimental Therapeutics

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Age-related changes in the capacity, rate, and modulation of dopamine (DA) uptake within the striatum and the nucleus accumbens core of Fischer 344 rats were investigated using in vivo **electrochem.** recordings coupled with local drug application techniques. Equimolar amts. of DA were pressure ejected into the striatum and the nucleus accumbens of 6-, 12-, 18-, and 24-mo old rats. The DA ejections produced larger DA signal amplitudes in the older rats, suggesting age-related differences in the capacity to clear extracellular DA. Within the striatum, the capacity and rate of DA uptake were reduced by 50% in the aged groups (18 and 24 mo) compared with the younger rats (6 and 12 mo). In the nucleus accumbens, significant redns. in DA uptake capacity and rate were obsd. in the 24-mo group. In both brain regions and in all age groups studied, the rate of DA uptake was found to be concn.-dependent until a maximal rate was reached. The max. rate of DA transport was significantly reduced in both the striatum and the nucleus accumbens of aged rats (18 and 24 mo vs. 6 and 12 mo). The ability of nomifensine, an inhibitor of the DA transporter, to **modulate** DA **signal** amplitudes in the striatum and the nucleus accumbens was also decreased with age (24 mo vs. 6 mo). Taken together, these findings demonstrate substantial age-related deficits in DA uptake processes within the striatum and the nucleus accumbens, consistent with the hypothesis that DA uptake may be slowed in aged animals to compensate for redns. in DA release.

REFERENCE COUNT: 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER **16** OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1999:17731 HCAPLUS

DOCUMENT NUMBER: 130:176753

TITLE: Tailoring Perfluorosulfonated Ionomer-Entrapped Sol-Gel-Derived Silica Nanocomposite for Spectroelectrochemical Sensing of Re(DMPE)3+

AUTHOR(S): Hu, Zhongmin; Slaterbeck, Andrew F.; Seliskar, Carl J.; Ridgway, Thomas H.; Heineman, William R.
 CORPORATE SOURCE: Department of Chemistry, University of Cincinnati, Cincinnati, OH, 45221-0172, USA
 SOURCE: Langmuir (1999), 15(3), 767-773
 CODEN: LANGD5; ISSN: 0743-7463
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB The influence of the initial molar ratio of H₂O relative to tetra-Et orthosilicate (TEOS) precursor and the content of Nafion ionomer in sol-gel-derived SiO₂ composites on the voltammetric response of electrodes modified with these composites for [ReI(DMPE)3]⁺ was studied. The slow diffusion of [ReI(DMPE)3]⁺ in Nafion can be significantly improved by dispersing Nafion in sol-gel-derived SiO₂, and the diffusion of [ReI(DMPE)3]⁺ in such a composite increases with the increase in H₂O/TEOS molar ratio and the decrease in Nafion content. With the mass ratio of Nafion relative to sol-gel-derived SiO₂ being 40:100 and the initial molar ratio of H₂O relative to TEOS being 20:1, the electrodes modified with the derived Nafion-SiO₂ nanocomposite exhibited an apparent peak current increase rate, during preconcn. of [ReI(DMPE)3]⁺, that was approx. three times faster than the corresponding Nafion-modified electrode. Compared with bare In-Sn oxide (ITO) glass, the composite-coated ITO glass showed a 25-fold enhancement in voltammetric response to [ReI(DMPE)3]⁺. The suitability of the developed optically transparent Nafion-SiO₂ composite for **spectroelectrochem.** sensing of [ReI(DMPE)3]⁺ was demonstrated. The [ReI(DMPE)3]⁺ extd. into the coating (.apprx.0.4 .mu.m in thickness) was electrolyzed to [ReII(DMPE)3]2⁺. Under attenuated total reflection mode, the in-situ electrogenerated chromophore [ReII(DMPE)3]2⁺ was monitored by probing its interaction with the evanescent field of light of a selected wavelength. Thus, the elements required for a **spectroelectrochem.** sensor with three modes of selectivity were demonstrated: partitioning into the film on an electrode surface and an **electrochem. modulated optical signal.**

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 17 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1998:542292 HCAPLUS
 DOCUMENT NUMBER: 129:226042
 TITLE: Electrical stimulation of the prefrontal cortex increases cholecystokinin, glutamate, and dopamine release in the nucleus accumbens: an in vivo microdialysis study in freely moving rats

AUTHOR(S): You, Zhi-Bing; Tzschentke, Thomas M.; Brodin, Ernst; Wise, Roy A.
 CORPORATE SOURCE: Center for Studies in Behavioral Neurobiology, Department of Psychology, Concordia University, Montreal, QC, H3G 1M8, Can.
 SOURCE: Journal of Neuroscience (1998), 18(16), 6492-6500
 CODEN: JNRSDS; ISSN: 0270-6474
 PUBLISHER: Society for Neuroscience
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB In vivo microdialysis, RIA, and HPLC with **electrochem.** or fluorometric detection were used to investigate the release of cholecystokinin (CCK), glutamate (Glu), and dopamine (DA) in nucleus accumbens septi (NAS) as a function of ipsilateral elec. stimulation of medial prefrontal cortex (mPFC). CCK was progressively elevated by mPFC stimulation at 50-200 Hz. Stimulation-induced CCK release was intensity-dependent at 250-700 .mu.A. NAS Glu and DA levels were each elevated by stimulation at 25-400 Hz; the dopamine metabolites DOPAC and homovanillic acid were increased by stimulation at 100-400 Hz. When rats

were trained to lever press for mPFC stimulation, the stimulation induced similar elevations of each of the three transmitters to those seen with experimenter-administered stimulation. Perfusion of 1 mM kynurenic acid (Kyn) into either the ventral tegmental area (VTA) or NAS blocked lever pressing for mPFC stimulation. VTA, but not NAS, perfusion of Kyn significantly attenuated the increases in NAS DA levels induced by mPFC stimulation. Kyn did not affect NAS CCK or Glu levels when perfused into either the VTA or NAS. The present results are consistent with histochem. evidence and provide the first in vivo evidence for the existence of a releasable pool of CCK in the NAS originating from the mPFC. Although dopamine is the transmitter most closely linked to reward function, it was CCK that showed frequency-dependent differences in release corresponding most closely to rewarding efficacy of the stimulation. Although not essential for the reward **signal** itself, coreleased CCK may **modulate** the impact of the glutamatergic action in this behavior.

REFERENCE COUNT: 98 THERE ARE 98 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 18 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1998:180215 HCAPLUS
 DOCUMENT NUMBER: 128:327865
 TITLE: Anodic electrodeposition of iridium oxide films
 AUTHOR(S): Petit, Michel A.; Plichon, Vincent
 CORPORATE SOURCE: URA 429 C.N.R.S., Laboratoire de Chimie et Electrochimie des Materiaux Moleculaires, Ecole Superieure de Physique et Chimie Industrielles, Paris, 75231, Fr.
 SOURCE: Journal of Electroanalytical Chemistry (1998), 444(2), 247-252
 CODEN: JECHES; ISSN: 0368-1874
 PUBLISHER: Elsevier Science S.A.
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB IrOx films were deposited on conducting transparent SnO₂-coated glass substrates with sheet resistance of .apprx.10 .OMEGA./.box. by **electrochem.** oxidn. of sol. iridium species in a basic aq. medium. Before being efficient for deposition, the iridium-contg. solns. have to be aged for a min. time which is detd. by UV-visible spectrophotometry. The IrOx films prepd. following the procedure described show cyclic voltammograms similar to those of anodic iridium oxide films (AIROF)'s grown on iridium surfaces, i.e. one or two redox systems depending on whether the pH of the electrolyte is lower or >5. The IrOx films could be completely dissolved in boiling hydrochloric acid solns. and consequently their iridium contents were very precisely detd. These anal. clearly showed that a total of two electrons/iridium are exchanged in a basic medium, i.e. one electron/iridium for each redox system as the charges involved in both systems are nearly the same. The optical properties of the IrOx films were monitored in situ under potential cycling. The more cathodic redox system was assigned to Ir(III)/Ir(IV), it exhibits an electrochromic behavior characterized by a complete transparency of the reduced state and a coloration factor approaching 18 cm² C⁻¹ at 633 nm. However, no significant **modulation** of the transmitted **signal** at 633 nm was detected for the 2nd redox system which was only obsd. in basic media and attributed to Ir(IV)/Ir(V).

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER 19 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1997:777782 HCAPLUS
 DOCUMENT NUMBER: 128:94489
 TITLE: In situ infrared spectroelectrochemistry: applications to electrocatalysis
 AUTHOR(S): Lopes, M. I. S.; Proenca, L.

CORPORATE SOURCE: CECUL, Faculdade de Ciencias da Universidade de Lisboa, Lisbon, 1294, Port.

SOURCE: Portugaliae Electrochimica Acta (1997), 15(June), 81-111
CODEN: PEACEZ; ISSN: 0872-1904

PUBLISHER: Portugaliae Electrochimica Acta

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB The use of in situ IR vibrational spectroscopy on the elucidation at a mol. level of **electrochem.** induced phenomena, i.e., in situ IR **spectroelectrochem.**, was rapidly developing in the last two decades, since a pioneer work of Bewick et al., by using **modulation** and synchronous detection of the **signal** in external reflectance IR spectroscopy. In situ IR **spectroelectrochem.** is a powerful tool for study of the electrode/soln. interface, by providing information on the structural, bonding and dynamical properties of adsorbate species on electrode surfaces, on the behavior of supporting electrolyte and solvent mols. at the **electrochem.** interface and also on reaction mechanisms and kinetics of electrocatalytic reactions. An overview of some theor. aspects of IR reflectance spectroscopy is presented and exptl. details of some in situ techniques are described, EMIRS (**Electrochem.** Modulated IR Reflectance Spectroscopy), SNIFTIRS (Subtractively Normalized Interfacial FTIR Reflectance Spectroscopy) and SPAIRs (Single Potential Alteration IR Reflectance Spectroscopy). A few selected application of these techniques to electrocatalysis are also presented. A review with 31 refs.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER (20) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:663877 HCAPLUS

DOCUMENT NUMBER: 128:9816

TITLE: Hydrodynamic modulation using vibrating electrodes: Application to electroanalysis

AUTHOR(S): Williams, David E.; Ellis, Keith; Colville, Alistair; Dennison, Stephen J.; Laguillo, George; Larsen, Jane

CORPORATE SOURCE: Department of Chemistry, University College London, 20 Gordon St, London, WC1H 0AJ, UK

SOURCE: Journal of Electroanalytical Chemistry (1997), 432(1-2), 159-169
CODEN: JECHES; ISSN: 0368-1874

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Microband (10 .mu.m.times.2 mm), multiple parallel microband (spacing 20 .mu.m) and planar (.apprx.1 mm2) electrodes, fabricated by screen printing and vibrated (2-50 Hz; 1-2 mm amplitude) either continuously or in pulsed motion parallel to the short axis of the band and perpendicular to the face of the planar electrodes, are described. The band electrodes were made by printing successive layers of gold and insulator onto a ceramic substrate then snapping along a pre-scribed line to expose a fresh surface. A clean and repeatable electrode surface for a disposable device was obtained by this simple expedient. The resulting microband electrodes when vibrated showed the signal enhancement characteristic of vibrated wire electrodes, the **modulation** depth and **signal** enhancement being smaller than those characteristic of a vibrated microwire but larger than those from larger diam. wires. The printed bands have the major advantages of ease of prepn. and use and of low cost and repeatability in bulk manuf. Reagents were also printed onto the devices and were rapidly dissolved and mixed into the test soln. by the vibration. A low-cost, single-use device for anal., without prior calibration, of chlorine in water was demonstrated with detection limit

around 0.3 $\mu\text{mol dm}^{-3}$ (0.02 ppm) and linearity into the mmol dm^{-3} range. Multiple microband electrodes were used to implement, in a simple and inexpensive way, generator-collector methods of **electrochem.** titrn., exemplified by the detn. of ascorbic acid using electrogenerated Fe(III). The anal. methods are repeatable and practical, although the hydrodynamics of these systems are complex. The current to planar electrodes oriented vertically and vibrated along the surface normal is not modulated: a uniform circulating flow appears to be set up. The current to microband electrodes vibrated parallel to the short axis is strongly modulated. For sinusoidal motion the current waveform is an amplitude- and frequency-dependent superposition of a no. of waves, each perfectly periodic in a simple multiple of the vibration frequency. The mean and max. current are independent of the amplitude of the motion. A qual. description of the hydrodynamics of the vibrating electrodes is given and the predicted dependence of mean current on (vibration frequency)^{1/2} demonstrated, despite the complexity of the current waveforms. The idea of using pulsed motion to renew periodically the concn. boundary conditions is discussed briefly.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L23 ANSWER (21) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1997:358237 HCAPLUS

DOCUMENT NUMBER: 127:127811

TITLE: Two-dimensional infrared correlation analysis of electrochemical reactions

AUTHOR(S): Osawa, Masatoshi; Yoshii, Katsumasa; Hibino, Yu-ichi; Nakano, Tatsuhiko; Noda, Isao

CORPORATE SOURCE: Catalysis Research Center, Hokkaido University, Sapporo, Japan

SOURCE: Journal of Electroanalytical Chemistry (1997), 426(1-2), 11-16

CODEN: JECHES; ISSN: 0368-1874

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three advanced IR spectroscopy techniques, surface-enhanced IR absorption spectroscopy (SEIRAS), step-scan Fourier-transform interferometry, and two-dimensional (2D) IR correlation anal., were applied to the study of **electrochem.** reactions. A combined use of SEIRAS and step-scan interferometry enables time-resolved spectral monitoring of **electrochem.** reactions with time-resolns. ranging from microseconds to milliseconds. Two-dimensional-IR correlation anal. highlights the dynamic information obscured in the time-resolved spectra. The basic concept of 2-dimensional-IR is somewhat analogous to that of 2-dimensional-NMR, and synchronous and asynchronous 2-dimensional spectra defined by two independent wavenumbers are generated by a correlation anal. of dynamic fluctuation of IR **signals** induced by a potential **modulation**. The synchronous and asynchronous spectra characterize the coherence and incoherence resp. of dynamic fluctuations of IR signals at two different wavenumbers. Bands arising from different transient species are clearly differentiated by their characteristic time-dependent behavior. The temporal relation between the intensity fluctuations of different bands also becomes clear. Deep insights into reaction processes are gained. The utilities of 2-dimensional-IR are demonstrated for the 1-electron redn. of heptylviologen at a silver electrode surface.

L23 ANSWER (22) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1996:32775 HCAPLUS

DOCUMENT NUMBER: 124:156822

TITLE: Comparison between Real-Time Polarization Modulation and Static Linear Polarization for in Situ Infrared

AUTHOR(S): Spectroscopy at Electrode Surfaces
 Richmond, William N.; Faguy, Peter W.; Jackson,
 Richard S.; Weibel, Stephen C.
 CORPORATE SOURCE: Department of Chemistry, University of Louisville,
 Louisville, KY, 40292, USA
 SOURCE: Analytical Chemistry (1996), 68(4), 621-8
 CODEN: ANCHAM; ISSN: 0003-2700
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB Both conventional static linear polarization selection and a new real-time
 sampling technique for polarization modulation were used for in situ FTIR
spectroelectrochem. studies of copper electrodes. Three aq. probe
 species were studied: thiocyanate ion, imidazole, and glucose. As the
 data were obtained under identical **electrochem.** conditions for
 the systems studied, a direct comparison of the optical methodologies was
 possible. The **modulation** technique provided excellent rejection
 of **signals** due to atm. gases and increases in overall
 sensitivity relative to the static method. Both techniques provided
 equiv. information with respect to surface species, but differed in the
 extent to which the electrolyte soln. was sampled. Thus, by using both
 techniques to study a given **electrochem.** process, a means to
 discriminate spectral features due to adsorbed species from those due to
 soln.-phase components is established.

L23 ANSWER (23) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1995:802881 HCAPLUS
 DOCUMENT NUMBER: 123:240123
 TITLE: Charge transfer at photoelectrochemical solar cells: a
 comparison of data from impedance and light-modulated
 spectroscopy
 AUTHOR(S): Schefold, J.
 CORPORATE SOURCE: Institut fuer Physikalische Elektronik, Universitaet
 Stuttgart, Stuttgart, 70569, Germany
 SOURCE: Journal of Electroanalytical Chemistry (1995),
 394(1-2), 35-48
 CODEN: JECHES; ISSN: 0368-1874
 PUBLISHER: Elsevier
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The impedance and the response to a light-modulated
signal are compared at p-InP|V3+/2+ semiconductor/liq. junctions.
 The familiar recombination semicircle, seen in the complex-plane
 representation of the light-modulated response, is explained by
electrochem. charge transfer (CT) phenomena. Transformable
 differential models are proposed which fit impedance and light-modulated
 data at bare and Ag-coated p-InP. Both spectroscopic methods verify an
 increase in the CT rate (the reason for higher solar-cell efficiency) and
 the capacity of the interface owing to the Ag coating. Unlike those at
 Ag-coated p-InP, CT rates measured at the open-circuit potential at bare
 electrodes show a dependency on illumination intensity. Though both
 spectroscopic methods are based on identical theor. principles, the no. of
 parameters which can be detd. at the system discussed is different (4
 parameters in impedance, 2 in the light-modulated method). Capacity data
 reported from several anal. methods are summarized and attributed to the
 same phys. quantity.

L23 ANSWER (24) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1995:362621 HCAPLUS
 DOCUMENT NUMBER: 122:304510
 TITLE: Tip-position modulation and lock-in detection in
 scanning electrochemical microscopy
 INVENTOR(S): Bard, Allen J.; Wipf, David O.

PATENT ASSIGNEE(S): University of Texas System, USA
 SOURCE: U.S., 22 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5382336	A	19950117	US 1992-869301	19920416
PRIORITY APPLN. INFO.:			US 1992-869301	19920416

AB Small-amplitude tip-position modulation (TPM) in combination with lock-in detection of the **modulated** current **signal** is applied to a scanning **electrochem.** microscope (SECM) to improve signal-to-noise ratio and to enhance image resolu. Phase shift information from the a.c. TPM signal and the bipolar response of TPM over insulators and conductors make TPM-SECM superior to conventional SECM imaging methods as well as useful for measuring substrate cond.

L23 ANSWER 25 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1994:469103 HCAPLUS
 DOCUMENT NUMBER: 121:69103
 TITLE: Multiple source and detection frequencies in detecting atomic or molecular spectra and/or threshold phenomena associated with the same
 INVENTOR(S): Weiss, Paul S.; Stranick, Stephan J.
 PATENT ASSIGNEE(S): Penn State Research Foundation, USA; Biotechnology Research and Development Corp.
 SOURCE: PCT Int. Appl., 48 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 7
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9402841	A1	19940203	WO 1993-US6720	19930716
W: CA, JP, KR RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 5268573	A	19931207	US 1992-916165	19920717
US 5281814	A	19940125	US 1992-979597	19921120
US 5397896	A	19950314	US 1993-92016	19930715
US 5434842	A	19950718	US 1993-92133	19930715
PRIORITY APPLN. INFO.:			US 1992-916165	A 19920717
			US 1992-979597	A 19921120
			US 1993-56348	A 19930430
			US 1993-92016	A 19930715
			US 1993-92133	A 19930715

AB Multiple frequency sources of light are used to apply a light signal to an app. (e.g., a scanning near-field optical microscope or a STM). After being **modulated** by the sample, the **signal** is detected and a spectrometer which detects simultaneously at the multiple input frequencies and combinations thereof. This permits multiple substances to be monitored simultaneously. When applied to **electrochem.** cells, this invention is particularly useful for measuring dynamic information of the **electrochem.** cell. When applied to a Coulomb blockade device, charging threshold and charge dissipation rates can be measured.

L23 ANSWER 26 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1993:681758 HCAPLUS

DOCUMENT NUMBER: 119:281758
 TITLE: Step-scanning interferometer with digital signal processing
 AUTHOR(S): Manning, Christopher J.; Griffiths, Peter R.
 CORPORATE SOURCE: Dep. Chem., Univ. Idaho, Moscow, ID, 83844-2343, USA
 SOURCE: Applied Spectroscopy (1993), 47(9), 1345-9
 CODEN: APSPA4; ISSN: 0003-7028
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB A novel step-scan FT-IR spectrometer incorporating a digital **signal** processor for **demodulation** of the detector **signal** is described. The potential advantages of this method of signal processing are discussed and illustrated. The instrument is based on a com. cube-corner interferometer which has been modified by replacement of the drive motor with a stepper motor-micrometer and piezoelec. transducer combination. The interferometer retardation is feedback controlled by a 486-50 personal computer, which also controls the digital signal processor and collects spectral data. More than one phase modulation frequency can be imposed simultaneously, allowing for a multiplex advantage in photoacoustic depth profiling. Digital **signal** processing allows for simultaneous **demodulation** of multiple frequencies which would normally require several lock-in amplifiers. Data that illustrate the feasibility of these concepts are presented. The suitability of this instrument for double-modulation step-scan FT-IR measurements such as polymer stretching and **electrochem.** modulated step-scan FT-IR is also discussed.

L23 ANSWER 27 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1993:594622 HCAPLUS
 DOCUMENT NUMBER: 119:194622
 TITLE: Step-scan FT-IR external reflection spectrometry of the electrode/electrolyte interface by potential modulation
 AUTHOR(S): Budevskas, Boiana O.; Griffiths, Peter R.
 CORPORATE SOURCE: Dep. Chem., Univ. Idaho, Moscow, ID, 83843, USA
 SOURCE: Analytical Chemistry (1993), 65(21), 2963-71
 CODEN: ANCHAM; ISSN: 0003-2700
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 AB The applications of conventional rapid-scanning Fourier transform IR (FT-IR) spectrometry for IR **spectroelectrochem.** measurements involving potential modulation is limited by the cross talk between the Fourier frequencies and the frequency at which the potential is modulated. In this report the authors show the first demonstration of **electrochem.** modulated IR spectrometry using a step-scanning phase-modulated interferometer. The wavenumber of the absorption band of CO adsorbed on polycryst. Pt electrode was modulated through the **electrochem.** Stark effect, and the detector **signal** was **demodulated** using two lock-in amplifiers, one for the phase modulation and the other for the potential modulation. The optimal data collection parameters and data manipulation techniques are discussed. The dynamic information contained in the in-phase and quadrature spectra is found to provide the time lag of the abs. potential at the surface of the working electrode relative to the applied potential. This parameter is an important characteristic of an **electrochem.** cell that is not readily accessible by other means.

L23 ANSWER 28 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1993:134711 HCAPLUS
 DOCUMENT NUMBER: 118:134711
 TITLE: Experimental implementation and capabilities of Fourier transform hydrodynamic modulation voltammetry
 AUTHOR(S): Schwartz, Daniel T.

CORPORATE SOURCE: Dep. Chem. Eng., Univ. Washington, Seattle, WA, 98195, USA

SOURCE: Journal of the Electrochemical Society (1993), 140(2), 452-8

CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The 1st exptl. implementation of Fourier transform hydrodynamic modulation voltammetry (FTHMV) is reported. Two different types of expts. were performed to illustrate the capabilities of the technique. First, the anal. utility of FTHMV is demonstrated by applying the technique to study the frequency response characteristics of mass-transfer limited redn. of 2 mM ferric ion at a speed-modulated rotating disk electrode. FTHMV, performed using a square wave rotation rate modulation, is a fast and accurate method for characterizing the system's frequency response in a single expt., and thus provides an excellent alternative to the common practice of performing many expts. at 1 frequency at a time. The 2nd application of FTHMV reported here is the anal. of nonlinearities in the mass-transfer limited current to a rotating disk electrode modulated at a single frequency. The nonlinear signal is proportional to the amplitude of the rotation rate modulation raised to the power of the harmonic component. Also discussed are the implications of time domain signal processing for improving the signal-to-noise performance of FTHMV.

L23 ANSWER (29) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1992:418523 HCAPLUS

DOCUMENT NUMBER: 117:18523

TITLE: Scanning electrochemical microscopy. 15.
Improvements in imaging via tip-position modulation and lock-in detection

AUTHOR(S): Wipf, David O.; Bard, Allen J.

CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Texas, Austin, TX, 78712, USA

SOURCE: Analytical Chemistry (1992), 64(13), 1362-7

CODEN: ANCHAM; ISSN: 0003-2700

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The use of small amplitude tip-position modulation (TPM) in combination with lock-in detection of the **modulated** current **signal** greatly improves the sensitivity and image resolu. of the scanning **electrochem.** microscope and provides a method of distinguishing between conductive and insulating areas on the substrate surface being examd. The exptl. in-phase current vs. distance behavior is characterized for insulating and conducting surfaces for various modulation amplitudes and frequencies. A simple deriv. model of the d.c. response is adequate to derive the in-phase TPM response at conductors; the insulator response does not conform to the theory and is, in fact, more sensitive than predicted. Demonstration images of an interdigitated array electrode using the dc and in-phase TPM signal are compared. The in-phase TPM image is found to be superior for imaging because of its improved sensitivity to insulating surfaces and its bipolar response over insulators and conductors.

L23 ANSWER (30) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:459410 HCAPLUS

DOCUMENT NUMBER: 115:59410

TITLE: In-situ spectroelectrochemistry of adsorbed methylene blue on a sulfur-modified gold electrode

AUTHOR(S): Lezna, R. O.; De Tacconi, N. R.; Hahn, F.; Arvia, A. J.

CORPORATE SOURCE: Fac. Cienc. Exactas, Univ. Nac. La Plata, La Plata, 1900, Argent.

SOURCE: Journal of Electroanalytical Chemistry and Interfacial

Electrochemistry (1991), 306(1-2), 259-69
CODEN: JEIEBC; ISSN: 0022-0728

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The properties of a methylene blue layer adsorbed onto a sulfur-modified gold electrode have been studied by **electrochem.** and in-situ reflectance spectroscopy in the visible region. At satn. coverage, methylene blue monomer and dimer bands were obsd. in the double-layer region through the electrochromism of the adsorbed film arising from the effect of the double-layer field on the mol. transition moment. Possible dye orientations in the adsorbed state are discussed with the aid of the optical measurements. At low surface concns., the optical **signal** stems from **modulation** of the monomer/dimer interconversion. Repeated **electrochem.** redn. and oxidn. of adsorbed methylene blue result in gradual desorption of the dimer species, probably due to a change in the mol. geometry upon redn. which may evolve from a planar configuration to a folded structure.

L23 ANSWER (31) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:177401 HCAPLUS

DOCUMENT NUMBER: 114:177401

TITLE: Use of time-dependent chemical sensor signals for selective identification

AUTHOR(S): Maclay, G. J.; Stetter, J. R.; Christesen, S. D.

CORPORATE SOURCE: Chem. Res. Dev. Eng. Cent., Aberdeen Proving Ground, MD, USA

SOURCE: Report (1989), CRDEC-TR-083; Order No. AD-A212729, 27 pp. Avail.: NTIS
From: Gov. Rep. Announce. Index (U. S.) 1990, 90(2), Abstr. No. 002,706

DOCUMENT TYPE: Report

LANGUAGE: English

AB A sensor is described for identifying and quantifying different components in a gas mixt. by decoding information from a **modulated** output **signal**. The system operates by passing the unknown gas into a reaction chamber contg. a heated catalytic filament. The output products of the chamber are detected by an **electrochem.** sensor. The concn. of the reaction products is modulated by varying the temp. of the catalytic filament. A theory is presented for analyzing the **modulated** output **signal**. The validity of the anal. is confirmed by expts. conducted with benzene, carbon monoxide, hydrogen cyanide, and by computer simulations. It appears possible to identify different species in the inlet gas stream if the species undergo chem. reactions in the reactor that have different activation energies. The signal magnitude at peaks or valleys in the output is directly proportional to concns. even though a steady-state condition is not reached. The approach may be generalized to other detector systems.

L23 ANSWER (32) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1991:20622 HCAPLUS

DOCUMENT NUMBER: 114:20622

TITLE: Homogeneous electrochemiluminescent specific-binding partner assay method, reagents, system, and kit, and use of the method in immunoassays

INVENTOR(S): Shah, Haresh P.; Hall, Lee O.; Powell, Michael J.; Massey, Richard J.

PATENT ASSIGNEE(S): IGEN Inc., USA

SOURCE: PCT Int. Appl., 60 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 11

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9005301	A1	19900517	WO 1989-US4919	19891031
W: AU, DK, FI, JP, KR, NO				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
AU 8946357	A1	19900528	AU 1989-46357	19891031
AU 637775	B2	19930610		
ZA 8908290	A	19910626	ZA 1989-8290	19891031
EP 446245	A1	19910918	EP 1989-913023	19891031
EP 446245	B1	19990512		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 04502209	T2	19920416	JP 1990-500352	19891031
JP 2992974	B2	19991220		
IL 92164	A1	19960119	IL 1989-92164	19891031
EP 757252	A2	19970205	EP 1996-202510	19891031
EP 757252	A3	19970416		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
AT 180057	E	19990515	AT 1989-913023	19891031
CA 2002101	AA	19900503	CA 1989-2002101	19891102
CA 2002101	C	20020528		
US 5635347	A	19970603	US 1994-188943	19940128
US 5705402	A	19980106	US 1994-255824	19940608
US 6448091	B1	20020910	US 1994-335183	19941107
US 5770459	A	19980623	US 1994-348749	19941201
US 5779976	A	19980714	US 1995-461395	19950605
US 5746974	A	19980505	US 1995-467028	19950606
US 5798083	A	19980825	US 1995-469464	19950606
US 6078782	A	20000620	US 1995-473313	19950607
US 2003008339	A1	20030109	US 2002-235127	20020905
PRIORITY APPLN. INFO.:				
			US 1988-266882	A 19881103
			US 1986-858354	B2 19860430
			US 1987-117017	B2 19871104
			EP 1989-913023	A3 19891031
			WO 1989-US4919	A 19891031
			US 1990-539389	B2 19900618
			US 1991-652427	B2 19910206
			US 1991-728093	B1 19910710
			US 1991-728194	B1 19910710
			US 1991-792602	B1 19911115
			US 1992-827269	B1 19920203
			US 1993-158193	B1 19931124
			US 1994-335183	B3 19941107
			US 1994-346832	A3 19941130
			US 1994-348749	B3 19941201

AB Homogeneous, **electrochemiluminescent** specific-binding assay methods are provided, as are reagent compns. and app. (diagrams included) for use in the methods. Binding of the **electrochemiluminescent** moiety-linked assay component to suspended microparticulate matter greatly **modulates** the intensity of the luminescent **signal** generated, providing a means of monitoring the specific binding reaction of the assay system. The suspended particles have little or no effect on the intensity of the luminescent signal generated by the **electrochemiluminescent** moiety-linked component which remains unbound to the suspended microparticulate matter. Thus, in the immunochem. detn. of theophylline, **electrochemiluminescent** signal counts were related to theophylline concn. in the range 0.0-40.0 .mu.g/mL. The methods of the invention were also used for immunochem. detn. of digoxin and IgGs, and in a hybridoma screening method.

L23 ANSWER 33 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1991:16852 HCAPLUS
 DOCUMENT NUMBER: 114:16852

TITLE: Use of time-dependent chemical sensor signals for selective identification

AUTHOR(S): Maclay, G. Jordan; Stetter, Joseph R.; Christesen, Steven

CORPORATE SOURCE: Dep. Electr. Eng. Comput. Sci., Univ. Illinois, Chicago, IL, 60680, USA

SOURCE: Sensors and Actuators (1989), 20(3), 277-85
CODEN: SEACDX; ISSN: 0250-6874

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A sensor system is described for identifying and quantifying different components in a gas mixt. by decoding information from a **modulated** output **signal**. The system operates by passing the unknown gas into a reaction chamber contg. a heated catalytic filament. The output products of the chamber are detected by an **electrochem.** sensor. The concn. of the reaction products is modulated by varying the temp. of the catalytic filament periodically. A theory is presented for analyzing the **modulated** output **signal**. The validity of the anal. is confirmed by expts. conducted with benzene, CO and HCN, and by computer simulations. It appears to be possible to identify different species in the inlet gas stream provided the species undergo chem. reactions in the reactor that have different activation energies. The signal magnitude at peaks or valleys in the output is directly proportional to concn., even though a steady-state condition is not reached. The approach may be generalized to other detector systems.

L23 ANSWER 34 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1989:108542 HCAPLUS

DOCUMENT NUMBER: 110:108542

TITLE: Vasoconstrictor hormones depolarize renal glomerular mesangial cells by activating chloride channels

AUTHOR(S): Kremer, Sid G.; Breuer, William V.; Skorecki, Karl L.

CORPORATE SOURCE: Dep. Med., Univ. Toronto, Toronto, ON, M5S 1A8, Can.

SOURCE: Journal of Cellular Physiology (1989), 138(1), 97-105
CODEN: JCLLAX; ISSN: 0021-9541

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The membrane potential-sensitive fluorescent dye bis-oxonol and the intracellular fluorescent Ca-sensitive probe Indo-1 were used to study the changes in membrane potential (Em) and intracellular free Ca concn. ([Ca²⁺]_i) in cultured rat mesangial cells in response to vasoconstrictor hormones. Basal [Ca²⁺]_i was 227 nM, and stimulation by maximal concns. of either vasopressin or angiotensin resulted in a transient 4-6-fold rise. Resting membrane potential was 45.8 mV and vasoconstrictor hormones caused a depolarization of 14-18 mV. The following extracellular ion substitutions indicated that Cl⁻ efflux was the predominant ion flux responsible for depolarization: (1) depolarization persisted when Na in the medium was substituted with N-methylglucamine; (2) substitution of medium NaCl with Na gluconate, which enhances the gradient for Cl⁻ efflux, augmented vasoconstrictor-stimulated depolarization; (3) suspension of cells in KCl medium resulted in depolarization, following which, stimulation by either vasopressin or angiotensin resulted in hyperpolarization; and (4) this hyperpolarization did not occur when K gluconate medium was used to depolarize the cells. The Ca ionophore ionomycin also resulted in membrane depolarization. However, prevention of the rise in [Ca²⁺]_i by prior exposure to ionomycin in Ca-free medium or by loading mesangial cells with the intracellular Ca buffer BAPTA did not abrogate the depolarization response to vasoconstrictor hormones. Evidently, a rise in [Ca²⁺]_i is not necessary for depolarization. In contrast, prior depolarization of the cells using varying concns. of KCl in the external medium, which dissipated the **electrochem.** gradient for Cl⁻ efflux, resulted in a corresponding prolongation of the transient Ca response to vasopressin and angiotensin. Evidently,

angiotensin and vasopressin depolarize mesangial cells by activating Cl⁻ channels and this activation can occur by both Ca-dependent and -independent mechanisms. In addn., activation of Cl⁻ channels with resulting depolarization may serve to **modulate** the Ca signal.

L23 ANSWER **35** OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1988:403189 HCAPLUS

DOCUMENT NUMBER: 109:3189

TITLE: Fabrication and characterization of a fiber-optic-based spectroelectrochemical probe

AUTHOR(S): Van Dyke, David A.; Cheng, Hung Yuan

CORPORATE SOURCE: Phys. Struct. Chem. Smith Kline and French Lab., Philadelphia, PA, 19101, USA

SOURCE: Analytical Chemistry (1988), 60(13), 1256-60

CODEN: ANCHAM; ISSN: 0003-2700

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Probes were constructed from fused silica optical fibers embedded in elec. conductive graphite/epoxy material with the optical and face and the working electrode active surface in a coplanar arrangement. The **electrochem.** properties and **spectroelectrochem.** response of the microprobe were characterized in solns. and in gels contg. UV-absorbing oxidizable compds. The concept of **electrochem. modulation** of spectral **signals** for fiber-optic-assisted spectroscopy was demonstrated by using the ascorbate/dopamine gel model. The validity of such an approach for **spectroelectrochem.** measurements in tissue was evaluated by using isolated animal brain. Further development and possible applications are discussed.

L23 ANSWER **36** OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1987:563887 HCAPLUS

DOCUMENT NUMBER: 107:163887

TITLE: Kinetics and mechanism of hydrogen and hydroxide electrosorption on faceted (100) platinum electrodes in acid solutions

AUTHOR(S): Bilmes, S. A.; Giordano, M. C.; Arvia, A. J.

CORPORATE SOURCE: Inst. Invest. Fisicoquim. Teor. Apl., La Plata, 1900, Argent.

SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1987), 227(1-2), 183-98

CODEN: JEIEBC; ISSN: 0022-0728

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The multiplicity of voltammetric peaks related to H-atom and OH-electroadsorption/electrodesorption reactions on faceted (100) Pt in 1M H₂SO₄ and 0.5M HClO₄ were investigated at different temps. by using linear sweep voltammetry with triangular modulation covering a relatively large frequency range of the **modulating signal**. The voltammetric multiplicity related to H-atom reactions in acid electrolytes is sensitive to both the surface structure and the structure and the structure of the soln. side of the elec. double layer. The kinetics of the reactions are apparently influenced in a cooperative way by the water-H-atom-anion ensemble formed at each site of a particular crystallog. plane. The main 3 reactions exhibit different relaxation time consts. from which one can infer that the process occurring in the potential range presumably closer to the potential of zero charge is the slowest one. Anion adsorption produces a surface energy leveling effect and changes the kinetics of the **electrochem.** reactions. The H-atom reactions can be interpreted through a formalism comprising the surface diffusion of H-atom among different adsorption sites followed by a relatively fast **electrochem.** step involving only one kind of H-atom. Data obtained for the OH--adsorbed reaction show, in principle,

the same trend as that of the H-atom reactions, although in this respect more extensive data are required.

L23 ANSWER 37 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1986:567047 HCAPLUS

DOCUMENT NUMBER: 105:167047

TITLE: The sequence and energetics of cell membrane transductive coupling to intracellular enzyme systems

AUTHOR(S): Adey, W. R.

CORPORATE SOURCE: Sch. Med., Loma Linda Univ., Loma Linda, CA, 92357, USA

SOURCE: Bioelectrochemistry and Bioenergetics (1986), 15(3), 447-56

CODEN: BEBEBP; ISSN: 0302-4598

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB Weak oscillating electromagnetic fields in the pericellular environment **modulate** key steps in coupling of **signals** from humoral stimuli at cell surface receptors to intracellular systems. Evidence that enzymic activity within the cell provides sensitive mol. markers about both the sequence and the energetics of transmembrane coupling mechanisms is reviewed. A 3-stage model of membrane transductive coupling is proposed: a 1st stage in which weak pericellular **electrochem.** oscillations and binding of humoral stimulating mols. at receptor sites initiates a highly cooperative modification of Ca binding, a 2nd stage involving transmission of signals initiated at receptor sites to the cell interior, and a 3rd stage dealing with intracellular response to the transmembrane signal. Exptl. data and models interrelating the pericellular **electrochem.** environment, cancer-promoting phorbol esters, and activities of protein kinases and ornithine decarboxylase are discussed.

L23 ANSWER 38 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1986:431838 HCAPLUS

DOCUMENT NUMBER: 105:31838

TITLE: The application of modulated voltammetry in the study of the corrosion and passivation of metals

AUTHOR(S): Vilche, Jorge R.; Arvia, Alejandro J.

CORPORATE SOURCE: Div. Electroquim., Inst. Invest. Fisicoquim. Teor. Apl., La Plata, Argent.

SOURCE: Anales de la Asociacion Quimica Argentina (1986), 74(2), 97-118

CODEN: AAQAAE; ISSN: 0365-0375

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Triangularly modulated both linear and triangular potential sweeps were used to study the **electrochem.** behavior Cd, Co, Fe, Ni, and Ag in different aq. electrolytes at 25.degree.. From the corresponding complex E/I curves obtained through the systematic charge of the amplitude and frequency of the **modulating signal**, qual. evaluation of different intermediate species can be made. The participation of chem. processes related to the stability of reactant and products related to film formation is envisaged. The advantages of this technique are discussed in comparison with other relaxation techniques.

L23 ANSWER 39 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1986:31010 HCAPLUS

DOCUMENT NUMBER: 104:31010

TITLE: The lipid membrane as a selective chemical transducer

AUTHOR(S): Krull, Ulrich; Thompson, Michael

CORPORATE SOURCE: Dep. Chem., Univ. Toronto, Toronto, ON, M5S 1A1, Can.

SOURCE: IEEE Transactions on Electron Devices (1985), ED-32(7), 1180-4

CODEN: IETDAI; ISSN: 0018-9383

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 18 refs. about the use of bilayer lipid membranes as selective **electrochem.** based transducers for org. species and inorg. ions. The possible mechanisms which can be employed for signal generation are summarized. Operation hinges on a selective interaction between analyte in aq. soln. and membrane-embedded receptors. Complexation of these latter species results in phys. perturbation of the membrane structure and/or electrostatic fields, leading to the evolution of an anal. **signal** based on ion-current **modulation** through the membrane.

L23 ANSWER (40) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1983:146577 HCAPLUS

DOCUMENT NUMBER: 98:146577

TITLE: Mechanism of hole injection on ferric oxide photoelectrodes

AUTHOR(S): Pajkossy, Tamas

CORPORATE SOURCE: Cent. Res. Inst. Phys., Hung. Acad. Sci., Budapest, H-1525, Hung.

SOURCE: Journal of the Electrochemical Society (1983), 130(3), 632-5

CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Photocurrent was measured on Fe₂O₃ **photoelectrochem.**-cell electrodes at const. electrode potential and slightly modulated illumination as a function of reducing agent concn. The av. value of the current was measured directly, and the current transients due to light **modulation** were recorded by using the **signal** averaging technique. The hole injection from the valence band is energetically possible. Due to insufficient data, it is not possible to give any est. of the phenomenol. rate coeffs. as they depend on factors such as electrode potential, illumination intensity, nature of solute, etc.

L23 ANSWER (41) OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 1981:578000 HCAPLUS

DOCUMENT NUMBER: 95:178000

TITLE: Optical investigation of the electrical properties of a polycrystalline-semiconductor-electrolyte interface using electroreflectance

AUTHOR(S): Silberstein, R. P.; Lyden, Joseph K.; Tomkiewicz, Micha; Pollak, Fred H.

CORPORATE SOURCE: Brooklyn Coll., City Univ. New York, Brooklyn, NY, 11210, USA

SOURCE: Journal of Vacuum Science and Technology (1981), 19(3), 406-10

CODEN: JVSTAL; ISSN: 0022-5355

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The low-field electrolyte electroreflectance (EER) spectra was studied for of polycryst. electrodeposited N-CdSe in the vicinity of the E₀(A,B) transitions (direct gap at $k.f.w.d.a.r.w. = 0$). By using the properties of low-field EER, the distribution was studied of the applied a.c. voltage in situ in the **photoelectrochem.** solar cell configuration. By measuring the in-phase and quadrature EER **signals** as a function of **modulation** frequency f , the elec. impedance $Z(f)$ was measured of the interface for $10 \text{ Hz} < f < 10 \text{ kHz}$, at the focus of the incident light. These results are in substantial agreement with direct elec. measurements. By measuring the EER amplitude as a function of applied d.c. bias voltage, evidence was found for surface states which contribute to Fermi level pinning; similar evidence was not obsd. for single-crystal

CdSe. These techniques are of general applicability for other semiconductor interfaces with optically transparent junctions, and are well suited to topog. scanning.

L23 ANSWER 42 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1981:67666 HCAPLUS
 DOCUMENT NUMBER: 94:67666
 TITLE: Universal chronopotentiometer
 AUTHOR(S): Ashkinazi, V. E.; Drapkin, M. Ya.; Shestopalov, Yu. N.
 CORPORATE SOURCE: Vses. Nauchno-Issled. Konstr. Inst. Nauchn. Priborostr., Leningrad, USSR
 SOURCE: Hidrokhimicheskie Materialy (1979), 73, 99-103
 CODEN: GKMAAS; ISSN: 0367-4665
 DOCUMENT TYPE: Journal
 LANGUAGE: Russian

AB An exptl. model of a universal chronopotentiometer was developed. It consists of a primary **electrochem.** converter, an elec. regulator, a **signal modulator**, an oscillog. recorder, and a thermostat. Accuracy was .apprx.3% for detn. of 0.05-0.5 mg Pb/L water.

L23 ANSWER 43 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1979:183393 HCAPLUS
 DOCUMENT NUMBER: 90:183393
 TITLE: Anomalous oxygen uptake from isolated chloroplasts inhibited in photosystem II and without external electron donors
 AUTHOR(S): Muallem, Avner; Malkin, Shmuel
 CORPORATE SOURCE: Biochem. Dep., Weizmann Inst. Sci., Rehovot, Israel
 SOURCE: Biochimica et Biophysica Acta (1979), 546(1), 175-82
 CODEN: BBACAQ; ISSN: 0006-3002
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB A light-induced **modulated signal** of O uptake by isolated chloroplasts in the presence of Me viologen, when photosystem II activity was inhibited by DCMU and in the absence of external electron donors, was detected by a modulated O Pt electrode, polarized neg. An **electrochem.** process taking place on the surface of the neg. polarized Pt-cathode produces an intermediate which serves as an electron donor to Photosystem I. This intermediate may be the superoxide radical generated by the **electrochem.** redn. of O which continuously diffuses from the external circulating medium to the electrode.

L23 ANSWER 44 OF 44 HCAPLUS COPYRIGHT 2003 ACS on STN
 ACCESSION NUMBER: 1978:78688 HCAPLUS
 DOCUMENT NUMBER: 88:78688
 TITLE: Electronic system for providing specificity in an electrochemical analytical device
 INVENTOR(S): David, Donald J.; Tucker, Huel C.
 PATENT ASSIGNEE(S): United States Dept. of the Army, USA
 SOURCE: U.S., 8 pp.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4048041	A	19770913	US 1976-689287	19760524
PRIORITY APPLN. INFO.:			US 1976-689287	19760524

AB An electronic circuit is described which continuously provides specificity for an **electrochem.** cell for the monitoring of nitroglycerin (I)

[55-63-0] in wastewater by controlling the applied potential to the working electrodes. The **electrochem.** cell has a Hg pool cathode, a Pt wire anode, and a calomel ref. electrode. A **modulated** neg. biased pulsed d.c. **signal** is used; the difference in the cell current at the start and finish of the pulse is measured with a demodulator with a differential amplifier circuit to give the current due only to the I redn. Current from any addnl. reactions that are const. or that occur above a desired redn. potential within the **electrochem.** cell are automatically cancelled by a gating circuit which is elec. coupled to the demodulator.